THE

JOURNAL OF GAS LIGHTING,

WATER SUPPLY, & SANITARY IMPROVEMENT.

VOL. XX. No. 498—23RD YEAR.] LONDON, NOVEMBER 7, 1871. [Subscription per Annum. { 15s. in Advance. 18s. Credit.] DOUBLE No. Price 1s.

RAMSAY'S NEWCASTLE CANNEL COAL. Analysis—10,000 cubic feet of gas per ton of coal; 26-candle gas; 13¼ cwt. coke per ton of coal.
RAMSAY'S PATENT CONDENSED COKE.
DO. GARESFIELD COKE.

RAMSAY'S FIRE-CLAY ARTICLES.

GAS-RETORTS, introduced 1828. FIRE-BRICK WORKS, established 1804. FIRE-CLAY SANITARY PIPES, CHIMNEY-TOPS, and all Goods made of Fire-Clay. The Fire-Clay is worked from Blaydon Main Colliery, is of excellent quality, and no expense spared in perfecting every article. The FIRE-BRICKS (marked "RAMSAY") are to be seen in all parts of the world, and the Works are the most extensive in the Kingdom.

Manufactories—Derwenthaugh, Swalwell, and Hebburn Quay, near Newcastle-on-Tyne; and London Wharves—Falcon Wharf, No. 80, Bankside; and Honduras Wharf, Cubit Town. Large stocks kept.

Address G. H. RAMSAY, NEWCASTLE-ON-TYNE.

GEORGE GLOVER & CO.,

Patentees of the Standard Gasometers for the Government, and of the

IMPROVED DRY GAS-METERS.

These Meters are warranted to measure correctly and not to vary. Their acknowledged superiority has brought them into general use more rapidly than any Meters hitherto manufactured.

To meet the increasing demand, G. GLOVER AND Co. have just entered on possession of extensive premises adjoining their present Works in Ranelagh Road, and they are now prepared to execute promptly, orders to any extent. They keep in stock all sizes of Meters up to 200 lights. In cases of haste, on the receipt of a telegram early on one day, their Meters can be delivered next day in any part of England, and in the large towns in Scotland.

Particulars and lists of prices forwarded on application to—

RANELAGH ROAD, PIMLICO, LONDON, S.W.;
236, GEORGE STREET, GLASGOW;
OR
15, MARKET STREET, MANCHESTER.

COWEN'S PATENT FIRE-CLAY RETORTS.

JOSEPH COWEN and CO.,

BLAYDON BURN, NEAR NEWCASTLE-ON-TYNE,

Were the only parties to whom a PRIZE MEDAL was awarded at the GREAT EXHIBITION of 1851, for "GAS-RETORTS and OTHER OBJECTS in FIRE-CLAY," and they have also been awarded in the INTERNATIONAL EXHIBITION of 1862, the PRIZE MEDAL for "GAS-RETORTS, FIRE-BRICKS, &c., for EXCELLENCE of QUALITY."

J. C. and Co. have been for many years the most extensive Manufacturers of Fire-Clay Retorts in the United Kingdom; and orders for Fire-Clay Retorts of all shapes and dimensions, Fire-Bricks, and every other article in Fire-Clay, are promptly executed at their Works as above.

COWEN'S GARESFIELD COALS.
Coal Office,
QUAY SIDE, NEWCASTLE-ON-TYNE.

JOHN RUSSELL AND CO.,

THE OLD TUBE-WORKS, WEDNESBURY;
AND
THE ALMA WORKS, WALSALL.
Established at the commencement of Gas Lighting.

WAREHOUSES:
69, UPPER THAMES STREET;
COMMERCIAL STREET, SPITALFIELDS;
5, CHARLES STREET, SOHO; and
16, SOHO SQUARE, } LONDON

35, 36, 37, & 39, GRANBY ROW, MANCHESTER.

J. R. and Co. are the original manufacturers of Wrought-Iron Gas Tubes and Fittings, and Inventors of the LAP-WELDED TUBES for Locomotive and Marine Boilers.

J. R. and Co. make all kinds of Tubes and Fittings for Gas, Steam, and Water; Gun-Metal Cocks, Stocks, and Dies; Galvanized Tubes and High-Pressure Tubes, &c.

Lists may be obtained on application to
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JOHN BENT & SON,

WET AND DRY GAS-METER
AND
STREET-LAMP
MANUFACTURERS,
BELL BARN ROAD, BIRMINGHAM.
ESTABLISHED 1830.

All materials found for the alteration of Public Lamps for lighting with the Rod. Regulators with Lava Burners.

BLAYDON BURN AND LOW BENWELL FIRE-CLAY RETORT AND FIRE-BRICK WORKS,
NEAR NEWCASTLE-ON-TYNE.

WILLIAM COCHRAN CARR begs most respectfully to thank the Metropolitan, Provincial, and Continental Gas Companies for their patronage for several years past, and to intimate that he has rebuilt and enlarged his extensive premises for the manufacture of CLAY RETORTS; and that he is now prepared to execute the largest orders with punctuality and despatch. Orders for FIRE-CLAY RETORTS, of all shapes and sizes, FIRE-BRICKS, and all other articles in Fire-Clay, executed on the shortest notice, and on the most reasonable terms.

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SCOTTISH CANNEL COAL.

J. & W. ROMANS, Consulting Gas Engineers and Coal Factors, of Edinburgh and London, CONTRACT for supplying any quantity of COAL and CANNEL.

They are also Contractors for leasing Gas-Works, for supplying, erecting, or repairing gas apparatus and fire-clay goods.

Messrs. ROMANS, being lessees of several Gas-Works, have their Cannels tested in the ordinary working process, thus securing for their customers a guarantee beyond mere laboratory experiments.

Analysis, prices, and other information will be forwarded on application to their Offices, 3, Forth Street, EDINBURGH; 1, Walbrook, Mansion House, LONDON, or to the "Crown Wharf," Thomas Street, Limehouse, LONDON, where stocks of house, steam, and gas coal are always on hand.

Coal, machinery, fire goods, &c., shipped to all parts of the world.

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LESSEES SINCE 1832.

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CONTINENTAL AGENTS:
LA COUR & WATSON,
LEITH.

GEORGE GLOVER AND CO.,

Patentees of the Standard Gasometers for the Government,

TWO MEDALS,

LONDON, 1862.

HAVE OBTAINED THE

HIGHEST

PRIZE

FOR

SILVER MEDAL,

PARIS, 1867.

IMPROVED DRY GAS-METERS AND GASOMETERS,

AT THE

PARIS EXHIBITION.

RANELAGH WORKS, RANELAGH ROAD, PIMLICO LONDON, S.W.;
AND 236, GEORGE STREET, GLASGOW.

WHITEHOUSE AND COMPANY, LIMITED,
GLOBE TUBE-WORKS, WEDNESBURY; & VICTORIA TUBE-WORKS, GREAT BRIDGE,
MANUFACTURERS OF
PATENT WELDED WROUGHT-IRON TUBES,
FOR GAS, STEAM, AND WATER;
STEAM-COCKS, AND ALL KINDS OF GAS-JOINTS.
LONDON OFFICE: 115, LEADENHALL STREET, E.C.

HENRY HOWARD & CO.,
COOMBS WOOD PATENT TUBE-WORKS.
OLD HILL, near DUDLEY,
MANUFACTURERS OF
HOWARD'S PATENT IMPROVED WROUGHT-IRON TUBES,
FOR GAS, STEAM, AND WATER;
Also ORDINARY WELDED WROUGHT-IRON TUBES and FITTINGS,
FOR GAS, STEAM, & WATER, EITHER BLACK, GALVANIZED, OR ENAMELLED.
CORE BARS FOR IRONFOUNDERS, STOCKS, TAPS, AND DIES, IRON COCKS, &c.
London Agent—W. G. DAVIS, 2, Brabant Court, Philpot Lane, E.C.

SILVER MEDAL, PARIS EXHIBITION, 1867.
LLOYD AND LLOYD,
ALBION TUBE-WORKS, BIRMINGHAM,
MANUFACTURERS OF
WROUGHT-IRON TUBES AND FITTINGS
For Gas, Steam, Water, &c.
SOLE LICENSEES AND MANUFACTURERS for the United Kingdom of
THE LAVENANT PATENT ENAMELLED TUBES AND FITTINGS.
LAP-WELDED IRON & HOMOGENEOUS METAL TUBES
For Locomotive, Marine, and Stationary Boilers.
Boiler-Tube Ferrules, Gun-Metal Gland Cocks, Water-Gauges, Whistles, &c.; Stocks, Taps, and Dies for Screwing, and Gas-Fitters Tools of all kinds.
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WILLIAM INGHAM AND SONS,
WORTLEY FIRE-BRICK AND RETORT WORKS,
Near

Leeds.
W. INGHAM and SONS, having for many years been extensively engaged in the Manufacture of
RETORTS AND FIRE-BRICKS FROM THE CELEBRATED WORTLEY FIRE-CLAY,
beg to call especial attention to their RETORTS, which have for many seasons proved to be unsurpassed in quality by any in the Kingdom, their FREEDOM FROM CRACKS and the ADHESION OF CARBON rendering them worthy the attention of all parties interested in the making of Gas.
The Works are of such magnitude as to ensure the prompt execution of orders to any extent.
Estimates for Setting, or Bricklayers sent when required.
GAS OVENS IN SEGMENTS OF EQUAL QUALITY.
A large Stock of Fire-Bricks, Fire-Clay, Terra Cotta, and Drain-Pipes of all Sizes kept in London at Mr. ALFRED WILLIAMS, Wharf, 64, Bankside, Southwark, where all particulars of Prices, &c., may be obtained.
N.B.—*Export orders continue to have prompt attention.*

TRADE MARK.

THE MEDAL FOR 1862.
The only Prize Medal awarded for TUBES & FITTINGS.
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WEDNESBURY, STAFFORDSHIRE.
WAREHOUSE: SOUTHWARK STREET, LONDON.

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PATENTEES & FIRST MAKERS OF WROUGHT-IRON TUBES,
ONLY MAKERS OF HOMOGENEOUS METAL TUBES.
MANUFACTURERS OF
TUBES and FITTINGS for GAS, STEAM, and WATER;
LAP-WELDED, LOCOMOTIVE, MARINE, and other BOILER TUBES;
HYDRAULIC TUBES, BEDSTEAD TUBES, WELL TUBES, TELEGRAPH POSTS, COILS, &c.;
GAS-FITTERS TOOLS, VALVES, COCKS, &c.

THOMAS PIGGOTT & CO.,

(Established 1822,)

SPRING HILL, BIRMINGHAM,

MANUFACTURERS OF

TELESCOPIC & SINGLE GASHOLDERS,

CAST & WROUGHT IRON TANKS FOR DITTO;

PURIFIERS, CONDENSERS, SCRUBBERS, RETORTS, VALVES;

IMPROVED WROUGHT-IRON RETORT-LIDS, CROSS-BARS, & SCREWS;

AND GAS APPARATUS OF EVERY DESCRIPTION.

CAST AND WROUGHT IRON GIRDERS, BRIDGES, AND ROOFS,

STEAM-ENGINE BOILERS, & GENERAL WROUGHT-IRON WORK.

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D. BRUCE PEEBLES & CO.,

ENGINEERS, WET AND DRY GAS-METER MANUFACTURERS,

BRASSFOUNDERS, & GAS APPARATUS MANUFACTURERS,

FOUNTAINBRIDGE WORKS, EDINBURGH.

SOLE MANUFACTURERS OF

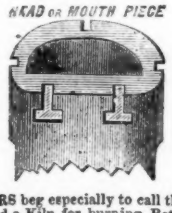
Peebles' Patent Wet and Dry Gas-Meters in Tin-Plate Cases, with Tongue and Groove Joints.

IMPROVED WET METERS IN CAST-IRON CASES.

STATION-METERS, GOVERNORS, EXPERIMENTING METERS, PHOTOMETERS, PRESSURE-GAUGES, &c.

KING BROTHERS,

STOURBRIDGE FIRE-BRICK AND RETORT WORKS.

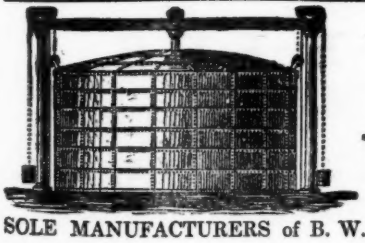


KING BROTHERS beg especially to call the attention of Gas Companies to the superiority of their Retorts, which are made from the celebrated STOURBRIDGE FIRE-CLAY. Mr. King has patented a Kiln for burning Retorts, by which Patent all Cold Air is excluded from the Kiln while burning, thus rendering them FREE FROM CRACKS AND CORRECT IN FORM. By great care in Manufacturing, combined with the advantages in burning, a VERY SMOOTH SURFACE is obtained, rendering them less liable to carbonize.

Retort Ovens, Fire-Bricks, Guards, Saddles, Rabbitted Bars, Flues, and Quarries, are all Manufactured of the same quality of Clay.

Every Retort and Brick is branded "King Brothers, Stourbridge."

Agent in Ireland—Mr. JAMES FURNESS, DOCTOR GARDENER STREET, DUBLIN.



IMPROVED GAS APPARATUS,

FOR CITIES, TOWNS, VILLAGES, &c.,

INVENTED AND MANUFACTURED BY

W. C. HOLMES & CO.,

WHITESTONE IRON-WORKS, HUDDERSFIELD.

SOLE MANUFACTURERS of B. W. THURSTON'S IMPROVED SCRUBBER, CONDENSER, and WASHER, in use in many of the principal Gas-Works on the Continent.

PATENTEES of the IMPROVED COMBINED PURIFYING APPARATUS, so eminently adapted for Exportation.

ESTIMATES, PLANS, and SPECIFICATIONS PREPARED for BUILDINGS and APPARATUS.

Prospectus, Price Lists, &c., on application.

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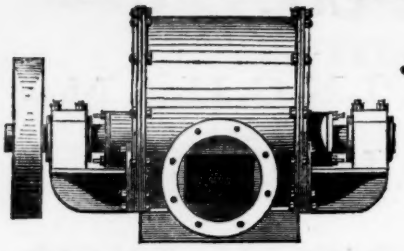
*** *Please address letters to Huddersfield.*

REFERENCES TO NEARLY 300 GAS-WORKS.

BEALE'S GAS-EXHAUSTER IMPROVED.



FROM 250 TO 250,000 CUBIC FEET PER HOUR.

Since Mr. BEALE'S retirement, the Oldest Makers are

J. BURTON, SONS, AND WALLER,

MAKERS OF ENGINES, MACHINERY, and IRONWORK for GAS-WORKS.

Efficient and durable TAR, LIQUOR, and SYPHON PUMPS.

GAS-VALVES in stock, 2 inches to 30 inches.

SELF-ACTING BYE-PASS VALVES, with Lid and Relieving Lever,

ROTATORY, TUMBLER, and CAPILLARY WATER DISTRIBUTORS for SCRUBBERS.

EXHAUSTERS from 3000 to 30,000 per hour in stock.

HOLLAND STREET, BLACKFRIARS, LONDON, S.E.,

Between Blackfriars' and Southwark Bridges.

LAMBERT BROTHERS, WALSALL.

ALPHA TUBE & FITTING WORKS

E. J. & J. PEARSON,

DELPH & TINTAM ABBEY FIRE-CLAY & BRICK WORKS,

STOURBRIDGE,

PROPRIETORS OF

BEST GLASS-HOUSE POT & CRUCIBLE CLAY;

MANUFACTURERS OF

GLASS-HOUSE POTS, CRUCIBLES, GAS-RETORTS, & FIRE-BRICKS OF EVERY DESCRIPTION.

ECONOMY IN GAS PURIFICATION. A PURER GAS AT LESS COST, AND GREAT SAVING IN LABOUR.

M'DOUGALLS' PRECIPITATED PEROXIDE OF IRON.

The above Oxide is now in use at some of the largest works in the kingdom, and has gained a decided preference, owing to its efficiency, cheapness, and the great saving in labour effected by its use.

It is a pure artificial Hydrated Peroxide, with an addition of only sufficient sawdust to give it the needful lightness or porosity to prevent pressure, and every particle is available for use.

In selecting an oxide, a point more important than its price, is to learn the cost of labour entailed in its use. Whilst at large works the cost of labour for purifying, where lime alone or the natural oxides are employed, is 2d. to 3d. per ton of coals, by the use of the above Oxide it is reduced to 1d. to 1½d., owing to the purifier's working so much longer when charged, and to rapid revivification—two points of special importance in the busy season.

For export to Foreign Works it is unequalled, every particle being available, and saves freight over less concentrated materials.

NOTE.—It is important to note that only the Hydrated Peroxide of Iron is useful, simple oxide being worthless. Inferior oxides show a large per centage of simple oxide, but very little Hydrated Peroxide.

M'DOUGALL BROTHERS,

LONDON—158, LEADENHALL STREET, E.C. MANCHESTER—68, PORT STREET.

THE FARNLEY IRON COMPANY, LIMITED,

FARNLEY, near LEEDS,

Possess special advantages for the prompt and efficient execution of large orders for

FIRE-CLAY RETORTS & FIRE-BRICKS,

Of every shape and size, and of the best quality; also for their *other productions* in Fire-Clay and Terra-Cotta, including their well-known White and Coloured GLAZED BRICKS.

The F. I. Co. have the exclusive right to make and sell Fraser's Patent "Ribbed" Retorts in Fire-Clay.

Apply as above, or at their Offices,

3, WESTMINSTER CHAMBERS, VICTORIA STREET, S.W., or at 46½, QUEEN STREET, HULL.

LIVESEY FIRE-CLAY WORKS,

NEAR BLACKBURN, LANCASHIRE.

(ESTABLISHED 1835.)

ORLANDO BROTHERS,

MANUFACTURER OF PATENT CLAY RETORTS,

AND EVERY DESCRIPTION OF

TUBULAR GLAZED SEWERAGE PIPES, BENDS, JUNCTIONS, ETC.

FIRE-BRICKS, TILES, BLOCKS, AND CHIMNEY-TOPS.

As Trustees of the late ORLANDO BROTHERS, we most respectfully announce that we intend to continue the above business, under the name of ORLANDO BROTHERS, in which name all communications must be addressed.

We trust that we shall receive a continuance of the same support which was given to our late father.

We are, yours most respectfully,

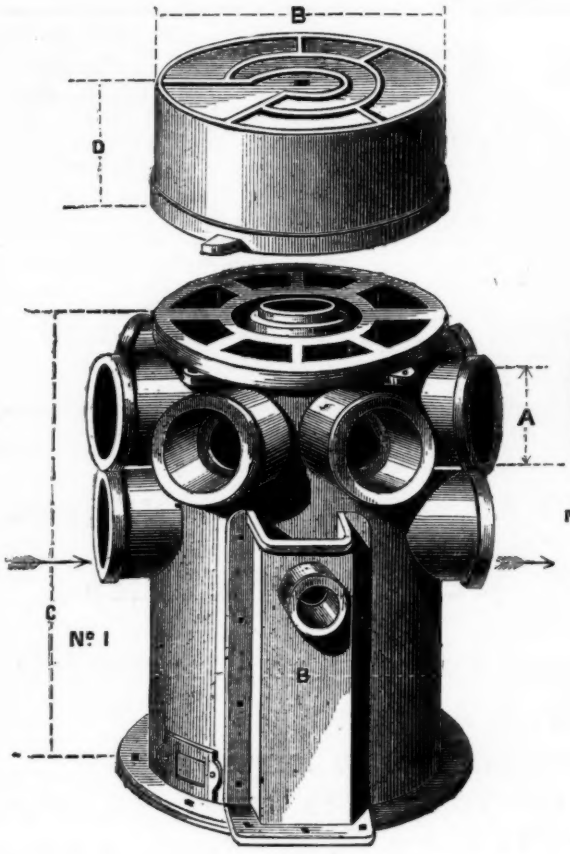
ORLANDO BROTHERS.
FRANCIS W. BROTHERS.
COLIN BROTHERS.

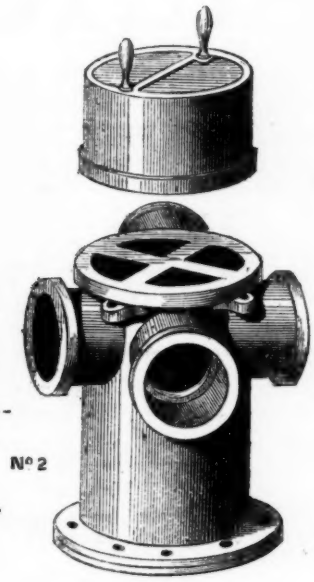
THE THORNCLIFFE IMPROVED CENTRE-VALVE,

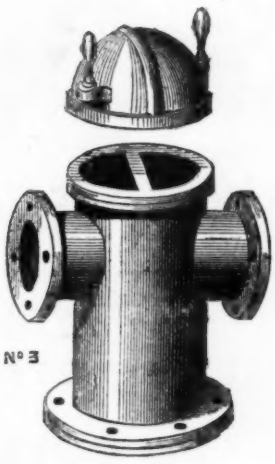
MANUFACTURED BY

MESSRS. NEWTON, CHAMBERS, & CO.,

THORNCLIFFE IRON-WORKS, NEAR SHEFFIELD.







Sizes of the

THORNCLIFFE IMPROVED CENTRE-VALVE.

		Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
A	Bore of Pipe...	4	5	6	7	8	9	10	12
B	Diam. of Body.	16	20	23	26	28	31	34	40
C	Height of Tank.	33	35	38	43	46	48	51	56
D	Depth of Cover.	8	9	10	11	12	13	14	16
	Total height...	41	44	48	54	58	61	65	72

THORNCLIFFE IMPROVED BYE-PASS VALVE.

SIZES

From 3 ins. upwards.

THORNCLIFFE IMPROVED STOP-VALVE.

SIZES

From 3 ins. upwards.

In all cases the Covers are cast heavy enough to resist any required pressure.

The advantages derived from the adoption of these Valves are so manifest and cardinal that in the immediate character of the change—the simplicity of the machine—the facility affording for cleaning out connexions between Valve and Purifier—the perfect collection and delivery by suitable overflow of the ammonia, at a greatly diminished depth from ground-line over the old form of Valve—the advantage of connecting on the same level, and at any angle, or opposite to each other, the inlet and outlet pipes without dip or rise—the clear acquisition of space in the purifying-house, by being able to place the boxes nearer together, the new Valve being entirely under the floor—and lastly, though of the greatest importance, the passage of crude and unpurified gas during the change is minimized to the merest fraction, thus preventing the fouling by impure gas the delicate machinery and easily affected exposed movements of the station-meter, thereby preventing the introduction of the enemy (unpurified gas) into the gasholder. Also a dead abutment is offered to all back pressure, imparting thereby to the gauges, governors, and hydraulic seals, a steadiness of action never realized with the once famous, but now fast becoming obsolete, Hydraulic Centre-Valve.

These Valves may be made of any size to suit any position of boxes, to stand any amount of pressure, warranted and tested with gas before leaving the manufactory, prepared to work any number of boxes in rotation—say, two, three, four, five, six, or eight—and for all Valves above 12-inch ports a suitable rack-and-pinion movement is attached if preferred. These Valves (specially arranged) are applicable to inlet or outlet pipes of gasholder, to act as Bye-pass Valves to meters, governors, exhauster, condensers, scrubbers, washers, driers, and duplicate systems of hydraulic main; also to act as Stop-Valves on special mains about the works. Where it is important no impediment be offered to tar or ammoniacal liquor, the same having uninterrupted flow to the general tar-well on the works, and for which purpose the slowly changed, often disordered, and at all times obstructive Slide-Valve (challenging the best of them) is superseded by the exceedingly simple, instantaneously changed Dome-Top Valve, which also carries so marked an index, whether open or shut, at any distance from close observation, providing the Valve can be seen at all. See sketch in perspective, No. 3.

London Office—34, LONDON WALL, MOORGATE STREET, E.C.

JOHN HALL & CO.,

STOURBRIDGE,

MANUFACTURERS of FIRE-BRICKS, LUMPS, & TILES,

AND EVERY DESCRIPTION OF FIRE-CLAY GOODS.

N.B.—A Stock of 15 and 16 in. CIRCULAR RETORTS always on hand. Other kinds made to order on short Notice.

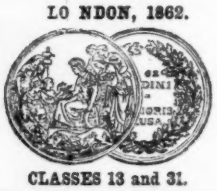
PARIS, 1867.

CLASSES 24 and 53.

WILLIAM SUGG,

GAS ENGINEER.

LONDON, 1862.



CLASSES 13 and 31.

PUBLIC LAMP GOVERNORS, LEVER COCKS, AND POLE LIGHTERS,

LAMP METERS AND BOXES.

LOWE'S JET PHOTOMETERS CAN NOW BE RATED TO 14 CANDLES.

VINCENT WORKS, VINCENT STREET, WESTMINSTER, S.W.

FLETCHER AND MURPHY,

GARRATT STREET WORKS, OLDHAM ROAD, MANCHESTER;

Manufacturers of

IMPROVED CONSUMERS WET GAS-METERS

IN CAST-IRON CASES,

THE UNVARYING WATER-LINE GAS-METER,

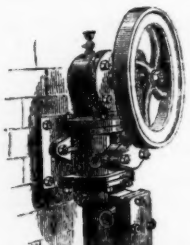
AND

IMPROVED DRY GAS-METERS;

STATION-METERS OF ALL SIZES, with PLANED JOINTS;

GOVERNORS, PRESSURE AND EXHAUST REGISTERS, TEST HOLDERS,

And all kinds of Experimental Gas Apparatus.



Attached to Wall-Plate.

KITTOE & BROTHERHOOD'S

PATENT

"PARAGON" STEAM-PUMP.

Sizes Nos. 1 to 10 deliver from 75 to 21,000 gallons per hour. Prices moderate.

GAS COMPANY'S OFFICE, LUTON, BEDFORDSHIRE,
Feb. 23, 1870.

Gentlemen,—The Paragon Pump which I purchased of you in 1868 has been in constant use from the date of its purchase to this time, for the supplementary supply of two 8 h.p. steam-boilers. It is in request day and night, and has performed the duties required of it without needing any repairs.

Yours respectfully,

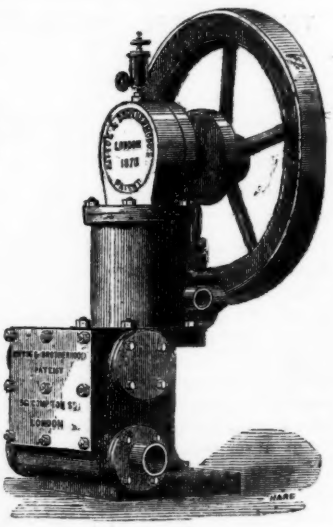
Messrs. Kittoe and Brotherhood. W. PHILLIPS.

MANAGER'S OFFICE, REDHILL GAS-WORKS,
Sept. 3, 1871.

Gentlemen,—The No. 6 Paragon Pump supplied by you has satisfactorily performed the work for which it was ordered—viz., feeding the boiler and pumping up water for the use of the works. In my opinion, it is a very compact arrangement, the working parts are thoroughly enclosed and protected, and the valves are very simply and quickly got at. It is a useful and reliable auxiliary.

Yours truly,

Messrs. Kittoe and Brotherhood. H. T. EVERIST, *Manager*.



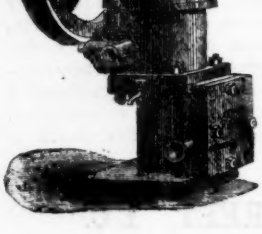


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FIG. 1.

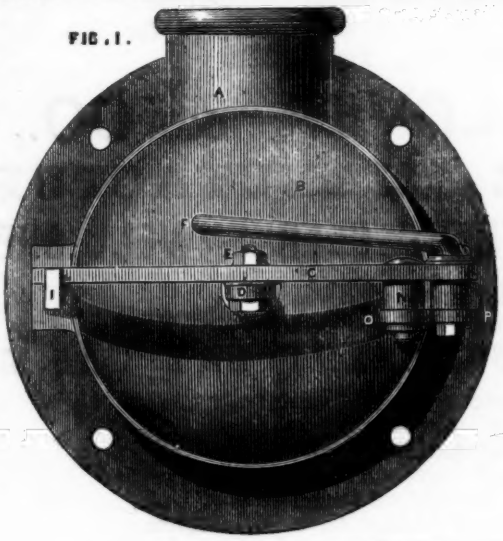
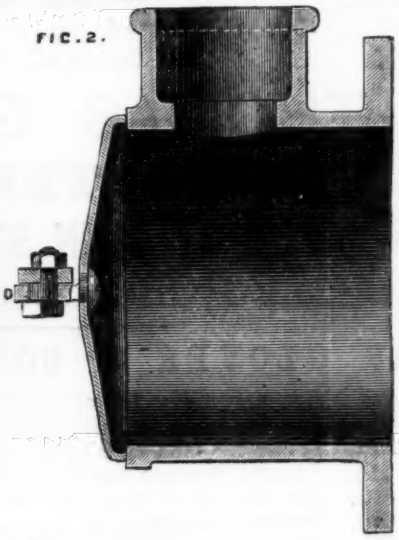


FIG. 2.



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LIVERPOOL,
DUBLIN,
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BURSLEM,
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BOSTON,
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BEST PUMP FOR PUMPING AMMONIACAL LIQUOR, TAR, AND WATER IN GAS-WORKS.

The "SPECIAL" Steam-Pump is adapted for all ordinary purposes for which Steam-driven Pumps are used. It is economical in first cost, occupies very little space, and the wear and tear is reduced to a minimum, because there is absolutely no extraneous gear.

REQUIRES NO SHAFTING, GEARING, RIGGERS, OR BELTS.

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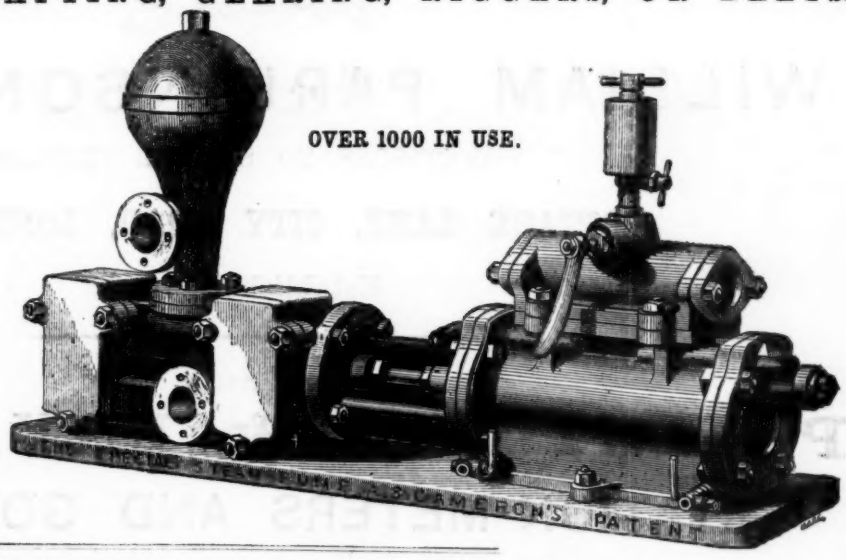
Brighton Gaslight and Coke Company.
Bury St. Edmund's Gas Company.
Burnley Gas Company.
Bradford Gaslight Company.
Corporation Gas-Works, Stockton.
Chartered Gas Company, Westminster.
Cork Gas-Works.
Dewsbury and Batley Gas Company.
Dublin Consumers Gaslight and Coke Company.
Dunstable Gas-Works.
Imperial Gas-Works, St. Pancras.
Ipswich Gas-Works.
Kingston-upon-Hull Gaslight Company
London Gaslight Company, Nine Elms
Lewes Gas-Works.
Louth Gas Company.
Middlesbro' Gas-Works.
Northampton Gas Company.
Phœnix Gas-Works, London.
Richmond Gas Company.
Rio de Janeiro Gas Company.
Reading Gas-Works.
Shipley Gas-Works, near Bradford.
St. Albans Gas-Works.
Sutton, Southcote, and Drypool Gas Company, Hull.
St. Helen's Gas Company, Lancashire.
Windsor Royal Gaslight Company.
Wandsworth and Putney Gas Company.
Woolwich Equitable Gas Company.
Western Gas-Works, Kensal Green.



OVER 1000 IN USE.

IMPORTANT TESTIMONIALS.

Manager's Office, Local Board Gas-Works, Middlesborough, March 19, 1868.

Dear Sirs,—In reply to your inquiry, I beg to say that the "Special" Steam-Pump, which you supplied to these works some months ago, has been at work ever since for pumping tar and ammonia water. I like it well, and am more than satisfied, for I am really pleased with its mode of doing double duty.

I am, very respectfully yours.

JOHN DUNNING, Manager.

Messrs. Tangye Brothers and Holman.

Richmond Gas Company, Manager's Office, Gas-Works, Richmond, June 17, 1868.

Dear Sirs,—I have the pleasure in stating that the three "Special" Steam-Pumps which we have in use—viz., one for water, one for pumping liquor through the scrubbers, and the other for filling tar barges, &c., are working well in every respect, and, I think, cannot be too highly recommended.

Yours truly,

JAMES ELDRIDGE, Manager.

Messrs. Tangye Brothers and Holman.

Sutton, Southcote, and Drypool Gas Company, Hull, May 1, 1871.

Gentlemen,—In reply to your note No. 410, April 29, I am very glad to inform you, that in a few hours after I got the pump started, and after I had written you, it did its work beautifully, and has continued to do so, throwing one day 4000 to 5000 gallons per hour, although you say 3250 gallons is its capacity. It is a splendid pump, the best I ever saw, and has just emptied a tank 82 feet diameter by 16 feet deep in 100 hours. I should have written to you some days ago had your note come earlier.—Yours truly,

F. W. OLDFIELD, Manager.

London, 1851. New York, 1853. Paris, 1855. London, 1862.

Dublin, 1865.

The SIX MEDALS AWARDED to THOMAS GLOVER for

PATENT DRY GAS-METERS,

The latter being the Highest Medal awarded for Dry Gas-Meters by the Imperial Commissioners for the Universal Exhibition, Paris, 1867.

Paris, 1867.

THOMAS GLOVER & CO.,

DRY GAS-METER MANUFACTURERS,

214 TO 222, ST. JOHN STREET, CLERKENWELL GREEN,

LONDON, E.C.

THOMAS GLOVER & CO.'S PATENT DRY GAS-METERS,

1st, Are a remedy for all the defects of Wet Meters;
2nd, Are suitable for all climates, whether hot or cold;
3rd, Incur no loss of Gas by evaporation;
4th, Cannot become fixed by frost, however severe;
5th, Are the most accurate and unvarying measurers of Gas;
6th, Prevent jumping or unexpected extinction of the Lights;
7th, May be fixed either above or below the level of the Lights;
8th, Cannot be tampered with, without visibly damaging the outer case;
9th, Will last much longer than Wet Meters;
10th, Will not cost more than one-half for repair that Wet or Water Meters do;
Are upheld for five years without charge.

WILLIAM PARKINSON & CO.,

(SUCCESSORS TO SAMUEL CROSLEY,)

COTTAGE LANE, CITY ROAD, LONDON, E.C.

Established 1816.

MANUFACTURERS OF

PATENT WET & DRY METERS,

STATION-METERS AND GOVERNORS,

PRESSURE REGISTERS, GAUGES,

EXPERIMENTAL METERS, PHOTOMETERS, GASHOLDERS, &c., &c.

WATER METERS.

W. P. & Co. beg to state that they are now prepared to supply Station-Meters with planed joints.

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TO CORRESPONDENTS.

No notice can be taken of anonymous communications. Whatever is intended for insertion, must be authenticated by the name and address of the writer; not necessarily for publication, but as a guarantee of good faith.

A Country Gas-Maker.—*The quality of sulphate of ammonia can only be accurately estimated by determining the amount of ammonia it contains, which is done by making what chemists call a combustion with soda lime. For this purpose a weighed quantity of the sulphate is mixed with soda lime, and the mixture is heated to redness in a glass tube, the ammonia evolved being collected in acidulated water. The operation requires to be performed with special precautions, and would only be successful in the hands of a skilled chemist. Ammoniacal liquor does lose strength in an open tank, and should be kept in a closed one.*

THE JOURNAL OF GAS LIGHTING, WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, NOVEMBER 7, 1871.

Notes upon Passing Events.

Mr. Scott Russell, after fifty years of clever attempts and crushing failures, which have given him not fame but notoriety—a very different thing—has the doubtful satisfaction of finding his name embalmed in Mr. Gladstone's great speech—not as an impostor, but as a quack. There we should be glad to leave this very clever, this wonderfully accomplished talker, were it not that it is fluent and accomplished gentlemen like Mr. Scott Russell, who, rankling with a grievance, or carried away by a crotchet, encourage ideas most mischievous to the healthy progress of the nation. Owenites, Fourcrites, St. Simonites, and Icarites did no harm as long as they relied on the simple principle of association—a principle that might be widely extended for many purposes amongst handworkers, with the best possible results. This principle has already placed freehold and long leasehold dwellings in the hands of thousands of working men. It has established in the cotton district co-operative factories as well as co-operative stores, where the necessaries of life are supplied of the best quality and at the lowest price consistent with working expenses. To establish a successful manufactory on co-operative principles, requires at least one man of more than ordinary energy and administrative skill. But there is not the least reason why, in every iron district, in every mining district, in every town or collection of villages where the atrocious truck system now prevails, a co-operative store should not take the place of the truck shop. Again, if the trade societies—the societies formed to resist what, under various names, they call the tyranny of capital—would extend their efforts beyond the organization for raising wages, they would easily succeed in establishing in those northern mineral districts where wages are so good, where drunkenness is so prevalent, where thrift is so utterly despised, a wholesomer line of life. At Hartlepool, the other day, there was a grand procession, with flags and drums, to celebrate the triumph of the nine hours movement—a very natural demonstration after such a success. But the close of the day presented a lamentable exhibition of the tastes of the modern English well-paid working man. Every third man you met was drunk, and every tenth riotous. In this district may be found (we speak from a trustworthy eye-witness, devoted to improving the condition of the really poor) families earning four, five, even six pounds per week, with dwellings barely furnished, no clothes except what they stand in, or what they take out of the pawnbroker's on "play days." In fact, with the income of the majority of beneficed clergymen, they are always within one week of destitution. For grown men of this character and habits nothing is to be done. The only hope lies in a compulsory educational system which shall catch the savages of tender years, and compel them to learn that there are some other occupations for a human being at leisure than gorging and swilling. As for the seven resolutions of which Mr. Barry is the father and Mr. Scott Russell the godfather, we look upon them as simply a contrivance for making the latter gentleman, who has so signally failed as an engineer and an administrator, a rival of Mr. Potter or Mr. Odger. No man with Mr. Russell's experience of men and knowledge of history, past and present, is less likely to really believe in a working man's Utopia, where the Government is to take the place of a parental Providence—all the parks and open fields within an hour's ride of great cities to be cut up into gardens, with detached cottages for artizans at nominal rents, connected with workshops by railways, which, "contrived a double debt to "pay," would convey the inhabitants of the cottages to and from their eight hours labour at nominal fares, and afford a number of excellent berths for skilled workmen of the governing classes. The purchase and sale of the food, the clothing, and other luxuries and necessaries required by the classes *privileged not to think for themselves*, would afford another warren for functionaries. With ample wages, and some pickings, another class would find agreeable employment in providing gratuitous or, at any rate, unprofitable amusement in Crystal Palaces and Alexandra Parks at national expense. After all, it is not, perhaps, extraordinary that Mr. Scott Russell should float a scheme in which there were to be no profits, and the Government was to pay all the losses, considering that no undertaking with which he has been connected has ever paid its way.

The London tramways have now had a fair trial, and, as far as public convenience is concerned, they must be pronounced a decided success. The strongest proof is that they are creating new traffic—people spend twopence on a tram ride who would walk the distance sooner than mount an omnibus; others, wherever the direction suits, use tram cars in preference to cabs. An easy, smooth motion, plenty of room, good ventilation, a regular pace, without any crawling or waiting for a load—these are merits which command success. On the other hand, it must be admitted that for the owners of private vehicles it is not pleasant or economical to exchange well-rolled macadam for granite pavement. The introduction of the steam-roller has removed all the objections to macadamized roads, and now, where they have arrived at perfection, the owners of horses have to submit to the fearful wear and tear of granite cubes. It is true that asphalte has been used instead of granite on the south side of the Thames, but it is not held in favour by the drivers, because, as we shall presently show, in our "Notes" on asphalte, it is a pavement over which horses cannot safely travel unless it is kept perfectly clean, and that is only probable, not to say possible, in rich, crowded thoroughfares like those of the City. In looking forward to a junction between the tramways on the north and the south sides of the river, which would give a clear run from the foot of Highgate Hill to Kennington, Camberwell, Greenwich, and Woolwich, we may presume that the first junction will be made by Blackfriars. London Bridge is very narrow; a tramway would require the removal of the footpaths to the outside of London Bridge balustrades—a great sin against architectural good taste, but a sacrifice that public convenience imperatively demands, unless the funds can be found for a new bridge over the Thames. We know not whether good taste is more powerful in the Corporation than formerly; at any rate, the sacrifice of the beauties of London Bridge to admit tramways would not be so barbarous a job as that which was perpetrated on the Royal Exchange, in spite of the remonstrances of Sir William Tite, very much to the benefit of the late Alderman Sir Francis Moon; over whose decease, very rich, at a mature age, so many crocodile tears have lately been shed—by other tradesmen, be it observed, not by artists. In the face of the daily block in King William Street, could not additional room be found by removing the

hideous statue of the King to some other place—near the Prince Consort, for instance—and replacing the pedestal by the ordinary lozenge-shaped harbour of refuge for foot passengers, protected by iron posts?

One of the editors of the *Spectator*—a newspaper which unites extraordinary ignorance of every practical subject, from agriculture to civil engineering, with remarkable literary ability—has, apparently, lately made a very bad voyage from Calais. The result is an article on the subject, in which the horrors of this middle passage are by no means exaggeration, while the suggestions for amendment are equally remarkable for their mechanical absurdity, and the unjust tone held towards English engineers and English capitalists. The *Spectator* says roundly "that such "wretched conveyance would be permitted by no other country "than England." What are the facts of the case? English enterprise has not only brought the difficulties of embarkation and landing at Dover to a minimum, by enabling two railway companies to place their trains on a covered stone pier alongside the Calais and Ostend boats, but has actually created, without assistance from Government, a port for Boulogne at Folkestone. In the meantime, what has been done by the French—the objects of the *Spectator's* unbounded admiration. Boulogne was for years denied a railway communication with Calais, lest the monopoly of the former port should be in the least affected, and it is only very recently that any attempt has been made to imitate, in an imperfect manner, the railway accommodation of Dover. Thousands of travellers can relate the miseries they have endured, stumbling on dark nights, with delicate women and heavy *impedimenta*, between the Calais landing and the railway station, there to be received by insolent officials, and packed into carriages carefully arranged not to exceed the accommodation for the number of passengers previously announced by telegraph from Dover. As to the demand for something in the shape of a stiff steam raft, broad enough to mitigate the tumult of the Channel, and narrow enough to enter Calais Harbour, to cost a "small sum of money," the *Spectator* might just as well ask for something that would do the work of a threshing-machine, be as portable as a flail, and cost about a sovereign. Calais, Boulogne, and Ostend, are all bar harbours, only open to vessels of shallow draught. They are also very narrow harbours, so that while they are inaccessible to a broad, stiff, raft-shaped ferry-boat, they are also impassable for such splended mail-boats as those which English private enterprise brought into existence with the Holyhead line to Dublin. There are no means of improving the Channel passage without creating a new port, or improving that of Calais, if the latter be possible. Let the French offer to do only half their part, or even to remove the difficulties to a new port, interposed by the jealousy of Calais, and there will be no want of engineering plans and money on the British side. As for the projects for tunnels and bridges from Kent to the Pas de Calais, we have never hesitated to term these engineering extravagances utterly unjustifiable as financial investments, having regard to the utmost possible traffic. But when engineers are very rich, they naturally like to do a big thing for reputation; and when engineers have nothing to do, any scheme that brings their names before the public is pardonable. As, however, there is so much real useful reproductive work to be done, as long as sewage poisons our towns and streams, we, as a journal of Sanitary Science, are naturally averse to such scientific red herrings, trailed before the noses of capitalists, as tunnels of thirty miles, and bridges to add to the dangers of a sufficiently dangerous sea passage.

We observe that the Metropolitan Board is about to adopt a suggestion we have repeatedly pressed on their attention, to make the deserted and disestablished churchyards of the metropolis places of beauty and recreation open to all classes. Queen Victoria Street has been opened by the joint authorities, the Lord Mayor and Corporation and the Metropolitan Board, without any ceremony worth naming. It is the last link in one of the grandest improvements committed to and carried out by the Metropolitan Board. Up to the present time the northern embankment has been a desert frequented chiefly by lovers, nursery-maids, and the juvenile population of the class that we hope soon to see policed into schools. Will the unbroken thoroughfare from Westminster to the Bank tempt more traffic? There can be no question that the right course would be to permit and encourage a tramway company to run a set of rails over Westminster Bridge to Victoria Station, and from the bridge to the Mansion House. Unfortunately the Metropolitan Board or Parliament, we know not which, has neglected its duties on an important point as regards tramways. The construction is not uniform. There is a serious difference between the rails of the northern and the southern companies, almost equal in obstruction when they meet—and they must meet—to a break of gauge. In all future extensions, uniformity should be insisted on. After a careful investigation, we have no hesitation in stating that the northern system of rails is infinitely superior to the southern. The southern rail is laid so deep that it is continually filled with stones. These give a sensible shock to the tramway carriages, and present a more dangerous obstacle to private carriages passing along them than the shallower rail of the northern trams.

Mr. William Haywood, engineer and surveyor of the Commissioners of Sewers of the City of London, has laid before the commission an exhaustive report on granite and asphalte pavements—a report full of information of value to all engaged in the management of the pavement of crowded streets. Before going into interesting details, we may say that the durability of asphalte as compared with the best granite pavement remains to be proved. Asphalte is extremely slippery in certain states of the weather—in foggy, damp, after slight rain, and after frost. It is always dangerously slippery if not kept scrupulously clean by street orderlies. Nothing is more slippery on pavement than horse-dung. But, as far as evidence can be gathered, asphalte properly kept is not more slippery than granite pavement, and the falls are not so dangerous—they are not accompanied with so many broken knees, and other disfiguring wounds, as on granite. In our opinion, average horses are less likely to fall on asphalte than on slippery pavement, because many are tender-footed and more or less lame. A horse with thrush, or any ordinary foot disease, travelling on granite, in slipping is likely to try to save himself by putting his tender foot down forcibly, perhaps on a corner of a cube. The pain is intense, and down he goes, cutting his knees and mouth. On asphalte, horses travel on a smooth surface, which is a great advantage to the tender-footed; but driving fast on asphalte, horses are liable to slip up sideways, as if on ice. Captain Shaw, of the Fire Brigade, prefers to gallop on asphalte; but then it is well known that there are fewer falls at a gallop than at a showy trot. If all London streets were either asphalte or steam-rolled macadam, horses could be specially shod for the purpose; but it is at present impossible to introduce asphalte on steep inclines like Ludgate Hill, where a drag must be used by heavy-loaded vehicles. The drag would cut up the asphalte; but perhaps an iron tram might be introduced on one side of steep roads, some ten inches wide, to obviate this difficulty. Few people have any idea of the wheeled traffic of London. There is nothing like it in any other city in the world. We get a faint idea of it from Mr. Haywood's carefully collected statistics. We pass over the comparison of the various kinds of asphalte. Between the companies there is keen competition. They are being fairly tried against each other, and time will surely test their respective merits. On the subject of granite, we will take Mr. Haywood's own words:

Within the City there are upwards of 900 public places, and the total length of the public way of all classes is about 48 miles. Of these about nine miles of carriage-ways are subject to the largest, most concentrated, and most destructive traffic in the world. There are also many miles of collateral streets which have great trades carried on in them, and have also a very large and trying traffic.

The wear from the traffic causes a large consumption of granite annually, which principally takes place in the main thoroughfares; these, therefore, need the best description of pavement, the most frequent renewal of their surface, and the most reparation.

The practice pursued almost uniformly is to lay this new granite in the main thoroughfares. When their pavements are considerably worn, or when an entire relay of the surface is needful, it is customary to remove the granite and lay new in its place; and thus it most frequently occurs that the pavements in main thoroughfares are removed before they are worn out.

The old material is taken to the stone-yard, where it is mixed with the general stock, reworked, sorted into sizes, and laid in other thoroughfares when needed; and it is owing to this system (which largely conduces to general convenience) that, although the cost of the repairs is accurately known, the cost of most of the pavements during a term of years cannot be arrived at excepting by estimate.

For public convenience, the hardest, most durable, and therefore the most economical granites are not employed. Hard granites have been tried, but have invariably caused so much dissatisfaction that they had to be removed before they had been down many years, and the grey or blue granites from Aberdeen, or those of similar character, have almost exclusively been used in the City as best meeting the general exigencies of the traffic.

Other circumstances affect the cost of the pavements. For example, the stoppage of the carriage traffic when a street is paved causes both public and local inconvenience, and sometimes, in the latter case, pecuniary loss, and, with the view of obviating this as far as practicable, relays are postponed far beyond the time when economy requires that the work should be done. Consequently the stones are much more damaged, and there is much more patchwork than would be otherwise required, and patching is the least satisfactory and the most expensive of all paving works.

Even when work is ordered, there is frequently difficulty in finding convenient opportunity for doing it, for it is necessary to consult the local boards surrounding the City as to work they may contemplate, so that two parts of the same line of highway may not be stopped up at the same time. The gas and water companies also require notice, to enable them to do their pipe-work, and time must elapse for the ground to consolidate afterwards. In some streets, the seasons which best suit special trades have to be taken into consideration, and days of festivity and public ceremonial have also to be considered, as they affect the traffic in main thoroughfares. These and other circumstances often prevent the pavements from being laid when it may be most economical to do the work; and even when all arrangements are complete, wet weather may disarrange them; indeed, in wet seasons, it frequently happens that work has to be postponed until the following year.

For these reasons the expenditure upon pavements in the City is necessarily high; nor can the cost be reduced, excepting by the sacrifice of public or local convenience in some of the particulars referred to.

The cost of a pavement depends upon the material of which it is formed, the width of the street, the extent and nature of the traffic, and other conditions. In no two streets, therefore, is their endurance or cost the same, and the difference between the highest and lowest is very considerable.

Mr. Haywood estimates the cost of maintaining a granite pavement

in Cheapside (taking the first cost at 16s. per square yard) at £1 4s. 4½d. per square yard per year for 15 years, or 1s. 7½d. per square yard per annum. The traffic of Cheapside amounts to 11,900 vehicles in 24 hours—perhaps the greatest in the world. The daily traffic of the Poultry in the same time is about 9600 vehicles. Whether this will be materially affected by the opening of Queen Victoria Street to the Embankment, remains to be seen. The traffic of Old Broad Street, recently laid with asphalte, is now about 2600 carriages in the 24 hours; it must be further increased when the Great Eastern removes its terminal station from Shoreditch to the Broad Street corner of Liverpool Street. The traffic of Moorgate Street, where Barnett's asphalte pavement has recently been laid down, at a cost of 2s. 6d. per yard less than Val de Travers, is at present 7400 vehicles per 24 hours, much of it quick, and some of it heavy. This traffic may be diminished by the extension of the Metropolitan Railway to Broad Street and Aldersgate, and by the probable extension of the North London tramways to the Bank. Mr. Haywood estimates the cost of laying and keeping up a granite pavement for 15 years in Moorgate Street at £1 0s. 7d. per yard; in Lombard Street, where the traffic is light in its character, and amounts to about 2600 vehicles in 24 hours, at £1 1s. 4½d. for 20 years. The whole balance of evidence shows that the cost of asphalte in streets of crowded traffic is not less, and may be more, than granite. It is in the comfort and convenience of asphalte that its advantages must be found. Where the traffic is of such a character that macadam is more economical than granite, there the use of asphalte, with the annual expenses of street-cleaning, will be found very extravagant. There are, however, situations where narrow streets running alongside places of worship, courts of justice, and theatres, make the use of asphalte, instead of the pavement preferred by tramway companies, indispensable. Mr. Haywood, under the head of "Conveyance," reports:

The asphalte is much less noisy under traffic than granite, although not so noiseless as a wooden pavement, and it is this absence of noise which is the principal inducement to use it. Asphalte is not so noiseless after it has been down two or three months as it is when first laid; this is attributable to its compression and solidification under the traffic. The asphalte being impervious to moisture, water falling upon it either runs off or is evaporated quickly. During the past winter, the thoroughfares paved with it were for days together the only dry carriage-ways in the City, for after rain the moisture remains in the dirt between the joints of granite pavements, causing them under traffic to be both wet and muddy, whereas the asphalte, if clean, is perfectly dry shortly after the rain has ceased; and this causes the footways to be cleaner than where the carriage-ways are of granite, for much of the mud upon footways comes from the carriage-ways. No process can clean granite pavements of the dirt which clings to the joints, except washing them—a process only applicable at early hours in the morning, or at night. On account of its smoothness many foot-passengers walk upon the asphalte, where the carriage traffic admits of their doing so, but they rarely walk upon granite pavements.

As to cleansing, Mr. Haywood says:

It is essential to the safety of the traffic that asphalte should be kept cleaner than granite, and indeed should be kept very clean. The surface being unabsorbent and without joints, is not only unfavourable to the accumulation of dirt, but offers more facility for cleansing than granite, whatever mode may be adopted for that purpose; for the broom, the scraper, the shovel, or water, can be applied to it more effectually than to any pavement with joints; indeed, no other pavement can be kept so clean by any process whatever as asphalte. It was found more easy to clear it effectually of snow, during the past winter, than any other pavement in the City. The best mode of cleansing it is by the street orderly system, combined with a morning sweeping, and occasional washing, and this is the mode now adopted. For carrying out the system, iron bins have been placed at intervals along the footways, to receive the refuse which the street orderlies collect so soon as it falls. When it rains sufficiently, they sweep the surface towards the kerbs with squeegees, and the water runs into the sewer, where it is harmless. This system diminishes the labour of the morning cleansing, which takes place before the street orderlies begin their work, reduces the cartage, leaves the manure collected of a higher value than that from streets swept but once daily, and maintains the asphalte in a state of cleanliness unattainable in thoroughfares paved with any other material. Small stores of sand are placed at each bin for strewing the asphalte when slipperiness occurs, and the superintendent of street-cleansing states that the quantity of sand used at first was considerable, but that it has been since greatly diminished, as experience shows that a very small quantity suffices for the purpose.

The high state of cleanliness renders street surface-watering unnecessary; and this is in itself an advantage, for street-watering is only resorted to, to prevent nuisance from the dust, and converts the dust into mud, which is also a nuisance.

The cleanliness causes more expenditure for labour during the day, but taking all circumstances into account, the superintendent considers that the expense is not materially higher than that incurred for other pavements in main streets of the City.

Mr. Haywood does not refer to an idea that has been ventilated of pumping water from the Thames for street-cleaning purposes, and we have no data before us for learning whether the saving in cost over the payment to the water companies would make this an economical application to asphalte, should its use be widely extended. With our present experience the whole case of asphalte and granite is very fairly summed up in the following general conclusions, with which Mr. Haywood winds up his report:—

My general conclusions upon the subject-matter of this report are—1. That asphalte carriage-way pavements afford much convenience and comfort to the traffic, and to the inhabitants of the streets in which they are laid, and that they lessen the labour of horses and the wear of carriages. 2. That, with great cleanliness and reasonable care during frost, asphalte pavements are, for the general traffic, as safe as granite; but that shortly after slight rain, and just before dryness ensues, in streets of much traffic, or when not kept clean, they are more slippery than granite, but that the duration of these periods of slipperiness is but short. 3. That great cleanliness is essential to them; that they can be kept cleaner than any other class of pavement; that the cost of doing so is not much more than that of cleaning other streets, and that with proper cleanliness street-watering is unnecessary. 4. That an asphalte surface can be laid and repaired as quickly as granite, but requires finer weather for its proper execution; that, when done, the work causes less inconvenience than granite; that less surface need be taken up for repairs over openings, but that the cost of the repairs will be greater than that of granite. 5. That the durability of asphalte will be less than granite, but in what degree there is no experience in this country to show. 6. That the first cost of asphalte is about the same as granite, but that the maintenance will be more expensive in streets of large traffic, and will vary according to the character of the road and the traffic over it, and that generally, therefore, asphalte will be more expensive than granite pavements. 7. That asphalte will be less expensive than macadamized roads where there is much traffic, and is free from the inconveniences of macadamized surfaces. 8. That with present experience it is not advisable generally to lay down asphalte in carriage-ways having steeper gradients than 1 in 60. 9. That asphalte is adapted to all streets having suitable gradients, excepting those in which special or exceptional trade or business is carried on, and where it may be difficult to maintain a high state of cleanliness.

The Corporation of London is certainly unfortunate. After awaking from a sort of doze that lasted for centuries, and executing, in new markets, in the new Blackfriars Bridge, and, above all, in the magnificent street improvements connected with the Holborn Viaduct, works which, by their convenience, have taken public opinion by storm, they find themselves over-triumphed by the Metropolitan Board, when with a little more audacity they might have won the trick and the rubber. The Metropolitan Board having finished nearly all the work for which it was created, and conquered its way right up to the Mansion House, has prepared for a new lease of official life by a gigantic and most plausible plan. They are about to apply to Parliament for leave to raise about two millions, and spend the greater part of it on a street commencing at Hart Street, New Oxford Street, and proceeding partly through existing thoroughfares, widened where needful, and partly through new cuttings, to Old Street, through Tabernacle Square, to High Street, Shoreditch; thence in a southern direction, by way of Commercial Street, to Whitechapel and the Docks, and eastward by the proposed new street to Bethnal Green Road, "at a cost of about "£800,000." Now it will be remembered that, before the Holborn Viaduct was completed, the engineer of that work reported in detail a plan for a street extending from the eastern end of the Viaduct, through Christ's Hospital, across Moorgate Street, on to Shoreditch, and ending at the Docks—a scheme very superior to that of the Metropolitan Board, because it utilizes Holborn, which widened is by no means over-crowded, and affords a straight line with excellent gradients. The Corporation might have executed this line with the assent of Parliament, had there been one energetic person of influence in the Corporation to father it. As it is, they are raising a wail at having to pay so much for improvements beyond the City bounds, like this last scheme of the Metropolitan Board. The Common Council forget that they cannot blow both hot and cold to Parliament. It is only the other day that they were rejoicing over Mr. Chamberlain Scott's pamphlet proving the vast wealth of the day population of the square mile which composes the City proper. Property has its duties as well as its rights. If wealthy men have millions of property in the City where they do not sleep, the City must not complain if it is taxed for the benefit of the rest of the metropolis, where the owners of shops, factories, and warehouses live; still less must the Corporation complain if the elected representatives of the rest of London proceed to plan improvements which, with unpardonable *laches*, the City has neglected in favour of antiquated ceremonies and unprofitable hospitality. Even now the Corporation might, perhaps, obtain leave to execute the plan of the engineer of the Holborn Viaduct.

Circular to Gas Companies.

It is a prevalent notion at the present moment that existing gas interests are seriously threatened by two recent inventions, which it is commonly supposed will produce something like a revolution in gas affairs. To one of these—Dr. Eveleigh's process—we have already alluded. If any accurate idea of the value of an invention could be derived from transactions on the Stock Exchange, the quoted price of shares in the Patent Gas Company might well create some little alarm in the minds of shareholders in ordinary gas companies. But when shares in a company which has never paid a dividend are quoted at extravagant premiums, the explanation is to be sought rather in the credulity of investors (not always the best judges of the worth of an invention) than in the merits of the invention itself, or somewhere else. We have intimated before that, with the conviction on our minds that there is little or nothing to be gained by the adoption of any part of Dr. Eveleigh's process, we wait with much interest the result of its working on such a scale as can alone demonstrate its value and adaptability to large undertakings. If these results should prove the most successful promised, there is still no occasion for alarm. Some outlay in alterations of, and additions to the plant, which, if all that is alleged be true, can easily be afforded, will, in diplo-

matic language, place any company under the conditions of the most favoured, and the worst that can happen will be a temporary diminution of profits. As regards the Patent Gas Company itself, all we can say is that it will give us unfeigned pleasure if we are ever able to congratulate the real investors on making such profits as are reported to have been made already by speculators in the shares of the company.

The other invention to which we must call attention is the oxyhydric light, exhibited for the first time in England, we believe, last Thursday, at the Crystal Palace. This light is produced by the supply of oxygen to a gas-flame in place of atmospheric air. Now we will admit at once the superiority of the illuminating power of a gas-flame so supplied, over a flame furnished with ordinary atmospheric air, which is equivalent to conceding that when the combustion is supported by oxygen less coal gas is required to produce a given amount of illumination. So much is undoubtedly true, but when we look at this invention from a commercial point of view, we see no source of danger to the prosperity of gas undertakings. The oxygen has first to be produced. The method followed by the Oxyhydric Light Company is that patented by M. Tessie du Motay, which, it must be admitted, is the most inexpensive process for obtaining oxygen known. The source of the oxygen is the atmosphere, the carrier of it, as we may say, is manganate of soda. When this compound is heated, it parts with oxygen, and when the evolution of the gas ceases, and atmospheric air is admitted to the retort, oxygen is again absorbed, to be again expelled on a further application of heat. At the Crystal Palace, as at the Paris Exhibition, 1867, two cast-iron retorts are employed. Each is about two-thirds filled with manganate of soda, and into them, alternately, air and superheated steam are admitted—air to supply the oxygen, and the superheated steam to expel it. On leaving the retort, the mixture of steam and oxygen passes on to a condenser, which removes the former, and the oxygen is carried on to an ordinary gas-holder. The gas so obtained, we understand, is never pure. It is really a mixture of from 60 to 70 per cent. of oxygen with atmospheric air. Such a mixture, however, is perfectly effective for the object desired.

We have here nearly all the plant requisite for manufacture of coal gas—retorts, condensers, and gasholders—and although the source of the oxygen is costless and inexhaustible, the expense of its isolation must be considerable. The estimated cost of the mixture named above, we are given to understand, is about 3s. 6d. per 1000 feet. Of the cost of its distribution our readers are well able to judge, but the general public may be informed that its use will necessitate another set of mains under the streets, and the duplication of all the pipes within their houses. Ten shillings per 1000 feet is spoken of as the selling price of the oxygen. Now, if only half the volume of coal gas now consumed be required to produce a certain illumination, and if only half that bulk of the oxygen mixture be required for the combustion, a simple calculation will show that the consumer will be anything but a gainer by adopting the oxyhydric light. The cost of the light now afforded by 1000 feet of gas at 3s. 4d. will be in fact 4s. 2d.

The alleged collateral advantages of the new system are almost too ridiculous to notice. It is gravely asserted, for example, that the combustion of gas by means of oxygen is so perfect that no carbonic or sulphuric acid is produced, and hence no deterioration of the atmosphere of a room and no danger to delicate decorations. The circulation of statements such as these by an otherwise intelligent daily press is perhaps the strongest argument that could be used for the necessity of extended scientific instruction in these days.

It can hardly be necessary to say more on this subject, but we may just add, that should the oxyhydric light ever come into use, gas companies by a natural law would become the purveyors of oxygen, the supply of which might be more profitable than that of coal gas.

We have here to supplement the abstract of the gas legislation for 1871, given in our last issue, by an enumeration of the companies who have availed themselves of the Gas and Water Works Facilities Act, 1870, to obtain Provisional Orders for their undertakings, since confirmed by a general Act. These are the Birkdale Gas Company, capital £7000, gas of 20-candle power, to be supplied for 4s. 6d. per 1000 feet; the Bognor Gas Company, capital £8500, 14-candle gas, to be supplied at 5s. 10d. or 6s. 8d., according to district; the Hawkhurst Gas Company, capital £2000, gas to be of 14-candle power for a maximum price of 7s. 6d.; the North Middlesex Company, to supply Hendon and Finchley, capital, £15,000, gas to be of 14-candle power, at a maximum price of 5s.; the Pembroke Docks and Town Gas Company, capital £10,000, gas of 14-candle power for 5s. 6d. per 1000 feet; the Southbank and Normanby Company, capital, £10,000, gas of 14-candle power for 5s. 5d., with 5d. discount for prompt payment; the Staines and Egham Gas Company, capital, £11,600, 14-candle gas for 5s. 6d.; the Stourbridge Gas Company, Order extending their district to Hagley, no additional capital, price of gas to vary from 5s. 6d. to 4s. 9d., according to consumption; and the Knutsford Gas Company, capital £7190, gas of 14-candle power to be charged from 6s. to 4s. 6d., according to the quantity consumed. These Provisional Orders have, it is hardly necessary to say, a strong resemblance to Acts of Parliament. They confer all the usual statutory powers on the companies, and impose all the common restrictions and penalties on companies and consumers. One feature is common to all—the mode of testing the quality and purity of the gas prescribed by the Gas-Works Clauses Amendment Act (1871) is introduced into all the Orders granted to companies not hitherto possessing statutory powers.

In addition to the above, two companies already in the possession of statutory powers have obtained Provisional Orders simply empowering them to raise additional capital and to borrow further moneys. The first of these is the Northampton Gas Company, who obtain power to raise £45,000 by the creation of new shares or stock, ordinary or preference, or both; and to borrow £15,000 in respect of the original, and £12,500 in respect of the new capital. It is to be remarked here that the order limits the dividend on the additional capital to 7 per cent., if raised by ordinary shares or stock, and to 6 per cent. if preference. The Taunton Gas Order empowers the Taunton Gas Company to raise £7000 additional capital by the issue of £5 shares, with the same limitations of dividends as above, and to borrow £2333 in respect of this new capital.

We may here take the opportunity of replying to a question put by a correspondent, who asks whether a company obtaining a Provisional Order is brought under the operation of the Gas-Works Clauses Amendment Act, 1871. It is true that this Act is not mentioned specifically in any one of the Orders named above, while the original Act of 1847 is incorporated in every one. The answer, however, to our correspondent's question is to be found in the amended Act of 1871, the first clause of which enacts that —"The Gas-Works Clauses Act, 1847, and this Act shall be con-"strued together as one Act;" and in the 3rd clause, which is as follows:—"The provisions of this Act shall apply to every gas "undertaking authorized by any special Act hereinafter passed, "or by any Provisional Order made under the authority of the "Gas and Water Works Facilities Act, 1870, save where such "provisions are expressly varied or excepted by any such special "Act or Provisional Order, and every such special Act and Pro-"visional Order is in this Act included in the term, 'the special "Act.'" In the particular case referred to by our correspondent, the second clause of the Order would appear to bring the company under the operation of the amended Act—at all events, in the extended district. Clause 5 of the Provisional Order, however, seems to confirm the company in all the rights, privileges, liabilities, and obligations conferred and imposed by their special Acts, 1855 and 1866, which, it may be, excepts them from the operation of the Act of 1871.

We may mention here that the sum authorized to be raised for gas purposes by the special Acts passed and Provisional Orders granted to companies in the past session, is, in the way of additional capital, £354,070; and as borrowed money, £107,060. The Corporation Acts give those bodies power to borrow in all £610,000 for the purpose of gas undertakings.

We regret to have to announce the death of Mr. George Rait, the managing director of The Gas-Meter Company. Mr. Rait had been in bad health for some time past, and had recently been granted six months leave of absence. He had gone to Jersey, and while there received intelligence of the sudden death of a brother-in-law, which was a great shock to him. Though very weak, he desired to be removed to London, but expired on the way, at Southampton, from an attack of apoplexy. He was universally respected, and the directors of the company at their last meeting passed the following resolution on the melancholy event:—

> The directors exceedingly regret to hear of the death of Mr. Rait, who had been associated with them for so many years, and desire to convey to his family their sincere sympathy and condolence under the bereavement which has so suddenly visited them and The Gas-Meter Company with which he was so intimately connected. The directors had hoped that the rest would have restored him to health, and that they might for many years have had the benefit of his ability and experience in connexion with the company.

Exception has been taken to the remark we made in our last relative to the difficulties of a gas collector in poor districts, and we are assured, on good authority, that small consumers, even of the criminal class, do soon yield to the importunities of a diligent and good-tempered collector. The habitual defaulters, we are told, are not the poor, but belong to quite a different class, who cannot here be particularized.

Our subscribers will receive with this number of the JOURNAL the second of the four additional plates of the Beckton works of the Chartered Gas Company. This plate gives plans and elevations of the scrubbers as originally designed, but some modifications have since been made in this part of the apparatus.

Miscellaneous News.

CONTINENTAL UNION GAS COMPANY, LIMITED.

The Ordinary General Meeting of the Shareholders of this Company was held at the City Terminus Hotel, London, on Tuesday, Oct. 31—Lewis Cubitt, Esq., in the chair.

The Secretary (Mr. R. J. Fennessy) read the notice convening the meeting, the accounts, and the following report of the directors:—

Your directors have to-day to lay before you the accounts for the year ending the 30th of June last.

On the occasion of meeting you this time last year, your directors had to report to you the effect which had already been produced upon your business by the war then raging in France. You were informed of the great damage done to the works and to the city of Strasburg, and of the strenuous efforts then being made towards the re-instatement of the former. You will be glad to learn that the repairs were sufficiently advanced to admit of a portion of the town being lighted on Christmas-day last, and that within a few weeks of that date the lighting was extended to the whole of the town, that the progress in the consumption up to the present promises a speedy return to former prosperity. Still, the total cessation of all rental from this important station during several months, and the inevitably small demands for some time afterwards, have practically cancelled for the last year the whole of the profits which this station had so regularly yielded. The works are now rebuilt, and the opportunity has been seized for introducing every improvement that experience could suggest. The German Government allowed the claim for damages, and the anticipations of your directors in this matter have been so far verified that at the present moment instalments amounting to 60 per cent. of the total claim have already been paid to the company in cash.

At *Rueil*, the actual damage done to the works has been very slight, but the events which followed the war retarded the resumption of business here until the beginning of summer. None of the other stations in France were damaged directly by the events of the war, but all suffered alike from the total stagnation in trade, which, indeed, was so far felt all over the Continent that even in Italy great depression ensued. Still, no absolute falling off was experienced at any of the stations in that country, though the progress which they made was not such as would have been seen under more auspicious circumstances, and the rate of exchange has operated prejudicially upon our remittances.

The work executed for extensions and improvements during the present year is as follows, viz.:—

Milan.—New coal-store. New battery of retorts.

Genoa.—Additional purifiers and mains.

Strassburg.—Entire reconstruction and extention of works.

Modena.—Alterations and improvements to works consequent on renewal of concession.

Alessandria, Cette, Nimes, and Vienne.—Additional purifying power.

Rueil, Vienne, and Messina.—Erection of exhausters.

Notwithstanding all the adverse circumstances of the past year, your directors are in a position to state that, looking at the very favourable future prospects that have developed themselves, they have decided to pay a dividend of 4 per cent. for the half year ending the 30th of June last, making with the interim dividend a total of 7 per cent. for the year. This dividend, together with that on the 7 per cent. preference shares, will be paid on the 4th of November.

With reference to the accounts already to hand for the current year, it is perhaps not a matter for surprise that they should show an improvement upon the corresponding period of 1870, but it augurs well for the future to find they compare most favourably with the same quarter of 1869, during which year the profits of the company attained proportions previously unknown.

The retiring director is Lewis Cubitt, Esq., who, being eligible for re-election, offers himself accordingly.

The retiring auditors are H. M'L. Backler, Esq., and J. Hadland, Esq., who, being eligible for re-election, offer themselves accordingly.

The Chairman: Gentlemen, in asking you now to receive and adopt the report that has just been presented, I desire, as is customary on these occasions, to offer to you a few remarks in reference to the business of the company. The report has told you that our great *bête noire*, Strassburg, has, fortunately, been improving during the last six months. We told you a year ago of the misfortunes that were occurring there, and of the probability of our being recompensed for the damage which our works sustained there. A commission was appointed by the German Government with some of our people to assess that damage, and they arrived at a result which was recognized by the Government as right and proper, and as they have received moneys from their conquest they have been paying us the compensation by instalments. We have thus received three-fifths of the amount assessed, and we hope we shall receive the remainder by Christmas. We have also laid out a great deal of additional money at Strasburg, and have thus made the works more perfect than they were before the siege. I believe the business in that town will speedily rally, and that our position there will be far superior than it was, so that we shall have no reason, except for the sad calamity which befell the French people, to regret the changes which have taken place. We tell you also in the report that by Christmas last we had partially recommenced the lighting of the place. This we were enabled to accomplish in a great measure by the assistance of the Germans. They lent us many of their men, as none could be got in any other way, and we have, I think, to be thankful to the Germans generally for the noble way in which they aided us in carrying out the necessary arrangements for the relighting of Strassburg. We shall get coals from Germany as we did before, and, in the long run, I do not believe we shall suffer much in any way. The consumption of gas promises to be very large, and though these are very early days, since the restoration of the works, to speak with confidence, I may say that, from what we have seen, we have been surprised at the rapid strides which the place has taken towards recovering itself. The French towns generally have not much helped us; they are very slow in recovering the losses they sustained during the war, and we can well imagine it would be so, because to many people the calamity was almost overwhelming. However, there is a great deal of vigour, energy, spirit, and *éclat* among the French as a nation, and I dare say they will, before long, again be prosperous, and that at our next meeting we shall have a much better report to present. We are spending money largely at all the stations for coals, because as the consumption of gas increases it involves the necessity for maintaining large stocks at each. I am sorry that during the year exchanges have been so unfavourable to us; had they been anything like *par* we could have offered you another 1 per cent. dividend. We are not alone in this matter, and every one who is at all connected with commercial enterprises knows that not only in France, but almost in every part of the world, the receipts and profits of such undertakings have been materially affected during the past year by the adverse rates of exchange. With regard to our future prospects, I can assure you that not only at Strassburg, but at all our fifteen stations, they are very encouraging. I think we have passed through the worst that could befall a commercial undertaking. Our Italian stations, as well as those in France, have felt the adverse circumstances which the war produced, but, as I say, I think we have passed through the worst, and that when we meet you again we shall be able to tell you a better story. We have passed through terrible crises before in connexion with this concern. We have had to contend with the effects of war, plague, and cholera; we have suffered from time to time from panics and other evils, but never have we had to pass through anything at all comparable to the late dreadful war in France. But this has been so severe that we may hope that, at least for a time, war will cease, and that the industry and energy of man will overcome all the losses, difficulties, and disasters which have befallen that nation. We shall do our best to aid in this work, and by putting our shoulders to the wheel I hope we shall soon see brighter and more prosperous days. I may state, in conclusion, that we shall shortly want some more capital, and that we propose to make a call upon the new shares at the beginning of January next. I now move—"That the report, with the accounts as read, be received and adopted."

Mr. Fawcett seconded the motion.

Mr. Stokes: I have but one word to say, and it must be quite in a congratulatory strain. I think we must all feel pleased with such a report as has been laid before us, and which is far more favourable than any of us could have expected. When we learn that after the disastrous effects of the siege of Strassburg the works were so speedily restored, that the relighting of the town was partially accomplished by last Christmas, we must admit that we have great reason for thankfulness. The prospects of the company altogether seem to be of a very cheering character, and such as to inspire us with hope and confidence.

The Chairman: I am glad to hear the honourable proprietor make these remarks, because I had the pleasure to see him recently at the offices of the company examining the accounts, and know that he has availed himself of the opportunity to verify the correctness of the statements we lay before you. I believe those accounts are thoroughly truthful, honest, and proper, and I am sure, while that is the case, we shall have your support.

The motion was put, and carried unanimously.

Mr. Tendron: I think it might be interesting to many shareholders in the room, and I for one confess that I should be glad if a little information could be given to us upon a matter which I will just mention. I am told that a new patent process has been recently made public by which the production of gas may be greatly stimulated. I dare say this subject has engaged the attention of the board, and I should like to know whether, in their judgment, it is likely to be prejudicial to us. It is an important thing if gas can be produced at the present cost of manufacture of a much higher illuminating power, and the experiments which have been made in this matter appear to me to be very wonderful in their results.

The Chairman: I will at once answer your inquiry to the best of my ability. We have given this subject our attention, as we do everything that comes forward as a new invention in connexion with the manufacture of gas; but we do not know enough respecting this invention to pronounce any opinion upon it. I may say, however, that in reality it is no new thing, but has been before the gas world a long time. I have been connected with the Imperial Gas Company very nearly thirty years as a director, and there, as here, we carefully consider every question likely to affect the economical production or distribution of gas. That company has been all through, except at the very first, when it was in bad hands, a very prosperous company, and as I said we carefully look at every question connected with the improvement of gas, or the cost of its production. In its early stages that company charged 15*s.* per 1000 cubic feet for gas, now it is supplying it at 3*s.* 8*d.* I can assure you that in this company we shall not lose sight of anything that promises to improve the quality of our gas, or its satisfactory distribution. At the same time, I may add that, though a thing is brought forward and makes apparently a favourable impression upon the public mind, it will have no effect upon us until we know for certain that it thoroughly and heartily deserves it. We shall be careful not to lead our proprietors astray by adopting untried inventions, but wait till facts justify our adoption of them. If it is worth consideration, we shall not shut our eyes to it because it seems to be a novelty; if otherwise, we shall not endanger your interests by embarking in it.

Mr. Tendron: I am very much obliged to the chairman for his satisfactory assurance.

Mr. Fawcett: It is my pleasing duty to propose that Lewis Cubitt, Esq., who retires by rotation, be re-elected a director of the company. I need not expatiate upon the value of Mr. Cubitt's services to this company. He is most constant in his attendance at the board, and as he tells you he has been a director of the Imperial Company for thirty years, I am sure you need no further assurance of his eminent qualifications for the post he occupies as the chairman of the Continental Union Gas Company.

Mr. White: I have very much pleasure in seconding the motion, and endorse every word uttered by Mr. Fawcett as to the qualifications of Mr. Cubitt, and his attention to the duties of his office. He is on our Finance Committee, and I assure you he looks well into the monetary affairs of the company.

The motion was unanimously adopted.

The Chairman: Gentlemen, I am very much obliged to you for the continuance of the confidence you have so long reposed in me. I hope I shall be able to work for you a little longer, and that in the future I and my colleagues may be able to show better results of our labour than we are able to do this half year.

Mr. Lewis: I move—"That H. M'Lauchlan Backler, Esq., and Joseph Hadland, Esq., be re-elected auditors of the company for the coming year." It is quite unnecessary for me to enlarge upon this motion. These gentlemen have served us well; they are well known to you, and in their presence it would be improper for me to say anything further in their praise. I have pleasure in moving their re-election.

Mr. Stokes: I second the motion. I believe we cannot have better men to fill the position which these gentlemen occupy. Mr. Backler I have known for many years as the indefatigable secretary of the European Gas Company, by whose exertions, in co-operation with the directors, it has been maintained as a most flourishing concern. I have not the pleasure of knowing so much about Mr. Hadland, but have no doubt he is well qualified for the duties of an auditor.

Mr. Blanford: I have known Mr. Hadland for many years as the deputy-chairman of the City of London Gas Company, and I am sure he is a most excellent colleague in the office of auditor with Mr. Backler.

The Chairman: It was the good fortune of this company, in the early part of its history, to have persons connected with its management who knew something practically of gas companies and gas-making, and I consider it was very fortunate that we secured the services of these gentlemen as auditors, and have had the benefit of their skill and ability ever since they were elected.

The motion was put and carried.

Mr. Backler: Gentlemen, for my colleague and for myself, I beg to thank you for the honour you have done us. It is not necessary I should say more than that we shall endeavour in the future to give the same attention to your accounts that we have bestowed upon them in the past.

The Chairman (in reply to an inquiry): The amount of the call will be £2 10*s.* per share.

Mr. Stokes: The business of the day having now concluded, I think we cannot separate without expressing our hearty thanks to the directors for the very able manner in which they have conducted our affairs. They have had troublous times to pass through, and we have all been looking at the black side of the cloud, never expecting to find it had such a silver lining as we have seen to-day.

Mr. Dew seconded the motion, which was put, and cordially adopted.

The Chairman: Gentlemen, I believe I must be the mouthpiece of the directors, and return you their thanks, with my own, for this continued mark of your approval of our conduct. I hope we shall be fortunate enough to retain the good opinion you have been kind enough to express respecting us to-day.

The proceedings then terminated.

BAHIA GAS COMPANY, LIMITED.

The Ordinary Half-Yearly General Meeting of this Company was held at the Offices, 10, Coleman Street, London, on Tuesday, Oct. 24—H. P. Stephenson, Esq., in the chair.

The Secretary (Mr. Alfred J. Head) read the advertisement convening the meeting, and the following report and statement of accounts were presented:—

The directors have to report the continued progress of the company towards an improved condition. The gas-rental and the receipts from products have increased; but owing to the rise in freights, during the German and French war, the cost of coal is higher, and the extra disbursements still continue high.

The new gasholder for the Barra has been erected, and since June last that district has been lighted in a manner satisfactory to the authorities and the inhabitants.

The new and enlarged mains are being proceeded with. Portions of the coal-store roof have been restored, and the directors hope soon to hear that the enlarged coal-store is entirely finished.

The accounts for the half year ending June 30, 1871, are herewith presented.

The directors recommend the usual dividend at the rate of 10 per cent. per annum on the preference shares, and 3 per cent. per annum on the ordinary shares; after which a balance of £142 13s. will remain to the credit of the profit and loss account.

The vacancy in the board of directors, caused by the death of Mr. Benjamin Cooke, has been filled up during the half year by the election of Mr. Joseph Quick.

Since then, Mr. John Blount, one of your directors, has resigned, and it is proposed that this vacancy should be filled up by the shareholders at the present meeting.

The directors retiring by rotation are Mr. Nicholson and Mr. Quick, who are eligible, and offer themselves for re-election.

The auditor retiring by rotation is Mr. J. Wright, who is also eligible, and offers himself for re-election.

Dr. *Balance-Sheet, June 30, 1871.* *Cr.*

To Capital—				By Concession		£7,000 0 0
5000 ordinary shares	£100,000 0 0			Investment—		
1000 10 per cent. preference ditto	20,000 0 0			To Dec., 1870	£87,557 10 1	
750 ditto redeemable ditto	15,000 0 0			Additional during half year	1,095 16 5	
	135,000 0 0				£88,653 6 6	
250 ditto ditto, issue of Dec. 31, 1870	4,540 0 0			Freehold land	4,534 16 1	
		£139,540 0 0				93,188 2 7
Creditors—				Meters fixed		1,528 10 0
On open accounts	1,338 16 0			Office furniture and fixtures		222 3 4
On acceptances	2,937 8 7			Preliminary expenses		16,914 17 3
		4,276 4 7		Amounts due for gas, fittings, &c.—		
Dividends unpaid		87 7 2		Public lamps	4,185 4 1	
Profit and loss		3,517 13 0		Ditto suspense account	2,626 15 9	
Reserve-fund		2 19 2				6,811 19 10
				Ditto establishments	3,845 1 3	
				Exchange Brazil Government	502 15 11	
						4,347 17 2
				Private rental and fittings	5,641 5 9	
				Sundry accounts	237 0 8	
						3,878 6 5
				Stock—		
				Coals	5,287 3 1	
				Turbo	23 17 9	
				Cotton seed pitch	83 11 4	
				Fittings	2,656 9 8	
				Meters	614 18 1	
				Main and service pipes, lamp-columns, and other materials	2,821 17 9	
						11,487 17 8
				Bills receivable		1,503 7 4
				Cash at bank—		
				General account	435 17 1	
				Dividend ditto	87 6 10	
				Bahia	15 19 4	
				In London office	1 19 1	
						541 2 4
		£147,424 3 11				£147,424 3 11

Dr. *Revenue Account, for the Six Months ending June 30, 1871.* *Cr.*

DISBURSEMENTS.				RECEIPTS.		
To Coals carbonized (2472 tons)		£4,803 7 2		By Gas supplied to public lamps	£8,695 7 5	
Purifying materials		56 3 2		Less fines	135 17 2	
Carbonizing wages		935 17 5			£8,559 10 3	
Wages of lamplighters		785 17 1		Private consumers	3,494 13 10	
Labourers, loading coke, &c.		129 13 8		Public establishments	795 8 7	
Salaries		1,138 13 9				£12,849 12 8
Collector's commission		168 11 6		Meter-rental		338 5 4
Directors fees		400 0 0		Products		1,673 12 6
Auditors ditto		21 0 0		Transfer fees		1 2 6
Rent and taxes		87 10 2				
Interest		76 2 2				
Stationery		100 15 2				
Office expenses		28 16 2				
Keep of horses		32 8 11				
Trade charges		251 2 0				
Wear and tear		786 0 6				
Repairs of public lamps		507 10 7				
Ditto of mains and services		66 19 2				
Travelling expenses		33 8 4				
Law charges		27 3 5				
EXTRA DISBURSEMENTS.						
Expenses on account of Barra lighting	£188 13 9					
Works renewal—retort-beds	77 12 3					
Coal-store, for new roof, &c.	157 6 10					
Bad debts, as per return to date	397 13 4					
Allowances	205 4 1					
		1,026 10 3				
Profit		3,399 2 5				
		£14,862 13 0				£14,862 13 0

Dr. *Profit and Loss Account.* *Cr.*

To Dividend declared, April 25, 1871	£3,250 0 0	By Balance of account to Dec. 31, 1870		£3,402 18 9
Loss on Exchange	109 8 2	Premiums received on redeemable preference shares		75 0 0
Balance	3,517 13 0	Revenue account—net profit for this half year		3,399 2 5
	£6,877 1 2			£6,877 1 2
		Balance		£3,517 13 0

The CHAIRMAN: Gentlemen, in moving that the report and statements of account, as now presented, be received and adopted, I shall venture to make a few remarks in reference to those documents. You see by the report that the directors congratulate you upon the continued progress of the company towards an improved condition. No doubt the shareholders will naturally say, "Why congratulate us when you are only paying us the same dividend as before?" I think that is a very natural question on the part of the shareholders; at the same time, on the part of the directors, we have reason to offer you our congratulations in regard to the improved condition of the company. I will shortly point out to you the matters upon which an improvement has been effected. I am glad to tell you that since the 14th of June last we have had the Barra gasholder erected, and that we are now supplying 97 more public lamps than we had before. I need not tell those of our shareholders who have attended previous meetings of the company, what a continual source of annoyance the Barra question has been to us, and how much it has damaged us with the Government and the private consumers at Bahia. It is a difficulty to which we ought never to have been subjected, and one which, if mains of the proper size had been laid, we never should have experienced. I am happy to say we are now out of the difficulty, and that since the middle of June last we have been supplying the Barra district with satisfaction to the Government and the inhabitants. Then we have commenced, and are carrying on, an enlargement of the mains to supply the Barra holder in a shorter time and at a lower pressure than we have hitherto done, because we felt that we were maintaining for the purpose a higher day pressure at the works than was otherwise required. We are laying a 9-inch main from the church of St. Bento, and I hope that the work will soon be completed. Another matter in which we are progressing, and which is not quite completed, is the enlargement and covering in of the coal-stores. During the last twelve months our coal-stores have been entirely uncovered, exposing our coal to the rain and the vicissitudes of a tropical climate, which I need hardly say has not improved our working. Our coal-stores are now being covered in, and I hope in a short time this work and that of the extensions will be complete. There is another improvement we have not yet attempted, but which I hope will shortly be carried out, and that is the covering over of the retort-house. The roof of that house is in a bad state—much damaged by the wind—and we are about to renew it. Then, in addition, I may tell you that we have at last one of our gasholders which works properly. I told you on a previous occasion that one of the holders only rose to two-thirds of its height, in consequence of the standards not being sufficient to allow more; also that another holder was rising on an inclined beam of wood, 18 inches at the top and 2 inches at the bottom, the tank wall being built out of the vertical. That gasholder was considerably damaged, the whole of the bottom plates being buckled in, and the sides in a very bad state. Until, however, the No. 1 gasholder could be got to rise its full height, it was impossible to do anything to this holder. No. 1 being now satisfactorily at work, the directors expect shortly to have a report as to the repairs which will be necessary to put the other in a proper state, and the work will be commenced as quickly as possible; but, while congratulating the shareholders on what the directors consider the improved position of the company, it would not be dealing fairly with them if I do not state also that the board are not satisfied with the working of the company at the present moment. We are not satisfied that the waste should be so large as it is, and we consider that it ought to be reduced; we are not satisfied with the make of gas per ton of coal carbonized or per mouthpiece; we are not satisfied with the large amount of high-priced cannel used to keep up the illuminating power, nor with the amount of fuel which is expended, nor the amount of labour charged in carrying on the business of the company at Bahia. To these several points we have directed the attention of our manager and deputy-manager there. There is another matter which no doubt those of our shareholders connected with gas questions will notice, and that is the large amount charged for the repairs of the public lamps. The directors have requested the attention of the manager to this point, and have desired him to make a special report upon it. Turning now to the balance-sheet, there is one item I should like to explain. You will observe that the outstanding debts have considerably increased. They amount to £11,159 17s. and £3878 6s. 5d. Now, of these amounts the sum due for public lights—£4185 4s. 1d.—was the amount of three months consumption of gas due on the day at which the balance-sheet was made up, and of that sum two months account has since been paid; so that, in this respect, there is a considerable reduction. One good feature in this part of the balance-sheet is that the arrears of private rental and fittings are £2338 less than at the corresponding period of last year. Then, if you turn to the profit and loss account, you will find that our expenditure for coal has increased by the sum of £685. This chiefly arose from the fact that last year we had not made our arrangements for freight before the Franco-German war broke out, and at the outset freights rose very largely. We were somewhat pressed for sending out coal at that time, and we had, therefore, to pay an enhanced freightage. But against this £685 additional cost of coal we have on the other side £435 additional public rental, and £288 more private rental, besides £567 in products, which is, I submit, very satisfactory. The other items in the profit and loss account do not call for any particular remark from me,

except as to the large expenditure for public lamp repairs, and the somewhat increased amount of wear and tear. Well, then, as regards our future. Our deputy-manager has sent in his resignation, and the directors have taken a considerable amount of trouble in endeavouring to select for his successor a gentleman well qualified for the post. They have at length appointed Mr. Hugh Baillie, the present manager of the Falkirk Gas-Works, a gentleman who comes to them highly recommended, and who they trust will prove an efficient officer. On a former occasion I directed your attention to the dispute with the Government on the public lamp question. That matter still remains in abeyance, owing to the absence of the President of Bahia, who is attending the Parliament at Rio. During his absence the vice-president has decided upon not dealing with the question, so that it remains in much the same state it was in when I last referred to it. Our manager is very confident that his view and ours is the correct view of the matter, but, as I say, it remains unsettled at the present moment. The other point to which we are directing our attention is the erection of a coal-jetty. For that we have a plan prepared which, when our deputy-manager goes out, will no doubt be put in hand, and some progress made in it when we meet you again. I may mention that when the Emperor of Brazil was over in this country we addressed His Majesty in a memorial from the board, to which we received a most gracious and satisfactory reply. You will have observed from the report that the vacancy in the board, caused by the lamented decease of Mr. Benjamin Cooke, has been filled up during the half year by the election of Mr. J. Quick, an appointment which I am quite sure will be most satisfactory to the shareholders. The directors thought in doing that they not only gained the experience of a most able engineer, but also brought into the service of the company the experience gained by that gentleman as a director of the Para Gas Company. As regards the present vacancy at the board, occasioned by the resignation of Mr. John Blount, the directors leave that in the hands of the shareholders. And now, gentlemen, I have only to move—"That the report and statements of account, as now presented, be and are hereby adopted."

Mr. NICHOLSON seconded the motion, which was put, and carried unanimously.

The CHAIRMAN moved—"That a dividend, at the rate of 10 per cent. per annum on the preference capital, and at the rate of 3 per cent. per annum on the ordinary capital, for the half year ending the 30th of June last, less income-tax, be and is hereby declared."

Mr. LINGING seconded the motion, which was put and carried.

On the motion of Mr. STEPHENSON CLARKE, seconded by Mr. WILSON, it was resolved that Mr. C. Nicholson, a retiring director, be re-elected.

On the motion of Mr. MORRISON, seconded by Mr. FINLAY, the retiring director, Mr. Quick, was re-elected.

Mr. PADDON then moved that Mr. Arthur J. Clarke be elected a director in the place of Mr. Blount, resigned. At a time like the present, when the policy of the board received the support of the shareholders at large, he held that the directors should select their own colleagues, but as they had consulted the shareholders on the subject, it was necessary the latter should do their best to support the hands of the directors. It was well known that for some time Mr. Clarke occupied the position of secretary to the company, and must therefore have acquired much knowledge as to their peculiar business. Reference had been made to the qualifications of Mr. Quick, for a seat at the board and he (Mr. Paddon) thought they were fortunate in obtaining the services of that gentleman. He thought also that he was following in the steps of the directors in this matter, in proposing Mr. Clarke, a gentleman whose position, character, and ability would make him equally acceptable to the directors and to the proprietors at large.

Mr. R. KING seconded the motion.

Mr. WILSON moved as an amendment—"That the vacancy occasioned by the resignation of Mr. Blount be not filled up." He said he did not make this proposal out of any unfriendly feeling to Mr. Clarke, but because he thought the present number of directors in excess of the requirements of the company, especially considering the low rate of dividend received by the proprietors.

Mr. NICHOLSON pointed out that, according to the 48th section of the Articles of Association, the number of the directors must be "not less than six nor more than twelve."

Mr. FINLAY asked whether, in the event of Mr. Clarke not being elected, the directors would consent to a reduction of the fees of the board.

Mr. NICHOLSON said they were already at the minimum fixed by the articles.

The CHAIRMAN said the directors had not considered the question raised by Mr. Finlay, and therefore he could give no reply to it. But he might state that if the meeting did not fill up the vacancy at the board, the directors would feel bound to do so at their next meeting. It was competent to the shareholders to give notice for an extraordinary meeting to alter the articles; but while those articles remained in their present state the vacancy must be filled up.

The amendment not having been seconded, fell to the ground, and

The original motion was put and carried.

Mr. CLARKE, in acknowledging the vote, said: I thank you, gentlemen, for the confidence you have reposed in me by electing me to a seat at the board. I am sorry that Mr. Wilson should on this occasion have proposed an amendment, but when I tell you that there were proxies lodged here last Friday in my favour, representing more than half the shareholders, you will see that I did not come forward without the hope of being supported in my candidature.

On the motion of Mr. STEPHENSON CLARKE, the retiring auditor, Mr. J. Wright, was re-elected.

Mr. FINLAY proposed that Mr. Magnus Ohren be elected an auditor of the company, in the place of Mr. A. J. Clarke, just elected a director.

Mr. PADDON seconded the motion, which was put, and carried unanimously.

Mr. OHREN acknowledged his obligations to the meeting for the confidence reposed in him.

A cordial vote of thanks was given to the chairman and directors for their services, and the CHAIRMAN, having briefly replied, the proceedings terminated.

BERLIN WATER-WORKS COMPANY, LIMITED.

An Extraordinary Meeting of the Shareholders of this Company was held at the Office, 35, Finsbury Square, London, on Monday, Oct. 30.—J. C. SIM, Esq., in the chair—for the purpose of considering, and, if thought desirable, of confirming the resolution passed unanimously at the meeting of the shareholders of the company held on the 12th ult., giving the directors power to increase the capital.

The SECRETARY (Mr. Fesch) read the advertisement convening the meeting, and the minutes of the meeting of the 12th ult., at which it was resolved that the future capital, instead of being limited, as by the deed of settlement, to £600,000, should be such an amount as the board of directors, with the assent of an extraordinary general meeting of shareholders, may from time to time determine.

The CHAIRMAN, in moving the confirmation of this resolution, said he explained to the proprietors on the last occasion that this was a statutable alteration requiring the votes of two extraordinary meetings of this sort to make it valid. At the last meeting also he explained, as fully as possible, the purposes for which this alteration in the articles was required—viz., that the directors thought there was a limitation to their proceedings in any offer, or treaty, or negotiation with the Government, or in extending the works of the company as circumstances might require, without this power of increasing the capital. He then stated that it was not sought with any intention of an immediate issue of shares, as some of their own friends in this country and in Berlin seemed to think. It was simply a statutable alteration, by which the company would no longer be limited to the capital of £600,000, as fixed by the original articles. There was nothing further to say on the subject, and therefore he moved—"That the alteration of the statutes, as proposed and agreed to at the last meeting, be confirmed by the present meeting."

The motion having been seconded, was put, and carried unanimously.

The CHAIRMAN said the directors had thought an opportune time had arrived, as perhaps the discussion on the last occasion had prepared the shareholders to understand, for taking from them more special authority than the board had hitherto possessed, to proceed with that which had been always advocated at these meetings—viz., a negotiation with the Government, as opportunity arose, for extending the powers of the concession under which the company were at present acting. There was nothing immediate proposed to be done, and, indeed, the directors had not even consulted their colleagues in Berlin on the subject; but as the shareholders had now given them powers to extend the capital as occasion required, they thought they might be able to approach the Government more directly on this question in the interests of the company. He therefore moved—"That the directors be, and they are hereby authorized to entertain, consider, negotiate, approve, and finally settle and carry into effect any arrangement with the Prussian Government, or the municipality of Berlin, or any other authority or persons, as to alteration of the concession with reference to time or otherwise, and also with relation to the increase of the capital, the creation of a sinking-fund, the reduction of the capital, or any other business which may be considered conducive to the interests of the company."

Mr. PICKERSGILL CUNLIFFE, in seconding the motion, said the directors had asked for power to increase the capital of the company, the existing capital being all exhausted, so that they might be in a position to negotiate on fair terms with the Government for an extension of the concession. There was no doubt that if the Government did listen to a proposition of the sort, they would demand a great extension of the pipe system of Berlin. It was intended to submit a resolution to the meeting authorizing the directors to allot some of the new shares to be created to official persons in Berlin, and with that exception the shareholders would derive all the advantage of the increased capital. The sewerage of Berlin was in a very bad state, and certain plans had been suggested for improving it; but it would be absolutely impossible to carry those plans into effect without a considerable addition to the present water supply. In the prospect of such a demand being made upon the company, the directors felt that this might be an opportune time for them to seek to enter into negotiations for prolonging the concession.

The motion was put, and carried unanimously.

The CHAIRMAN then moved to the effect that in the event of an increase in the capital of the company, under the powers conferred by the preceding resolutions, the shares so created should be allotted *pro ratâ* among the existing shareholders, save that the directors be empowered, before proceeding, to allot such shares, to set aside and reserve a certain portion for the purpose of allotment in Berlin, and that the shares in such new capital be issued at such times, and on such terms, and at such price, as the directors deem expedient, so that no shares in such new capital be issued at any price less than par. He explained that the object of the directors in asking power to reserve some of the shares for allotment in Berlin was that they might give the opportunity to persons there to acquire an interest in the prosperity of the undertaking.

Mr. CUNLIFFE, in seconding the motion, said it was not intended to issue any shares unless an extension of the concession was secured.

The motion, after a brief conversation, was put and agreed to.

Mr. CUNLIFFE, in reply to an inquiry, said that at the end of the existing concession, if no extension were obtained, the authorities would take over the property of the company at a valuation.

On the motion of Mr. FLESCHELLE, a vote of thanks was accorded to the directors; and the CHAIRMAN having acknowledged the same, the proceedings terminated.

SINGAPORE GAS COMPANY, LIMITED.

An Extraordinary General Meeting of the Shareholders of this Company was held at the London Tavern, Bishopsgate Street, on Tuesday, Oct. 24—H. P. STEPHENSON, Esq., in the chair.

The SECRETARY (Mr. R. King) having read the advertisement convening the meeting, the following reports and statements of account were presented:—

The directors have the satisfaction of reporting continued progress in the lighting of Singapore, for particulars of which they refer to the report annexed, from their engineer and manager, Mr. E. J. Wells, dated Sept. 8, 1871.

The directors are pleased to report that the new gasholder has been shipped, and is on its way to Singapore.

The balance-sheet to the 30th of June, 1871, and appended to this report, shows the financial position of the company. The profits for the half year are £1597 2s., after writing off the whole of the balance (£896 14s. 11d.) of coal deficiency suspense account, and £5 off office furniture, which, together with £15 15s. 11d., the unappropriated profit of the preceding half year, makes the available balance £1612 17s. 11d. Out of this sum the directors recommend the declaration of a dividend at the rate of 7½ per cent. per annum, less income-tax, on the preference capital, and a dividend at the rate of 7 per cent. per annum on the amounts paid up on the original capital, free from income-tax; the balance of £13 7s. 9d. to be carried forward to the profit of the succeeding half year.

The dividend to be payable on the 30th of November next.

The report of Mr. Wells, the engineer and manager, was as follows;—

Singapore, Sept. 8, 1871.

Gentlemen,—Having forwarded to you the whole of the balance-sheets, showing the working for the half year ending the 30th of June, 1871 (which I trust you will find correct), I think you will agree with me that the statements of accounts show that the company is again placed in a satisfactory position. The figures will prove that if the progress of the company has not been rapid during the past six months, it has been satisfactory, the profits having increased and cost of production decreased, which the following figures will show for this six months, as compared with the previous half year.

Gas and meter rental, increase 324·73 dols.; coke, increase 1092·67 dols.; tar, increase 218·72 dols.; sundries, or incidental increase in profits, 823·25 dols.; breeze and ammoniacal liquor, decrease 207 dols.

Coals carbonized cost 1077 dols. less than last half year, and an increase of make per ton of 185 cubic feet.

And as regards the several amounts as charges, rent, taxes, &c., they remain about the same as last half year.

Bad debts and allowances are slightly higher; this arises from my discontinuing to supply a number of petty consumers. Loss by exchange shows an increase of 69 dols. Take the profit and loss account at Singapore, we show an increase in profit over the previous half year of 3229·32 dols., not including the fitting account.

The coals consumed for the half year show the actual working, as the stocks were taken and worked out during the half year in the ordinary way by scoop weight, and showed a surplus of 10 tons on 602 tons. The working in the portions of the two previous half years whilst I was away from Singapore had been assumed, which led to the unfortunate affair of the coal deficiency.

The retorts having been worked at such a low heat, a much larger quantity of coal was consumed (than was returned in the books) to make sufficient gas to meet the demand. Australian coals require a high heat to get the quantity of gas from them; and again, a low heat, instead of producing coke, makes but little better than ashes and breeze, which is borne out by the following figures:—Feb. 1, 1870, Breeze, 2 dols.; March 1, 9 dols.; April 1, 25 dols.; May 1, 33 dols.; June 1, 55 dols.; July 1, 52 dols.; and 223·50 dols. for the remaining five months. With the retorts at a good working heat, all the breeze that can be made for sale, over and above what is required for the steam-boiler, is about 12 dols. in the six months. Again, another proof of the coal being consumed is that 4922 gallons of tar have been used and sold over stocks (or what should have been stocks on the returns given of coals). On the 1st of December, 1869, two months before I left for England, tar stock was cleared and the well pumped out.

These are questions I wrote to the then acting manager, upon telling him his heat was down or he would not have the breeze for sale. All his letters to me were that the heats were all right, and everything was satisfactory, and on no occasion was the deficiency of coal stocks mentioned. Having thus made a few remarks upon this unfortunate affair, I will now turn to the bright side, and say I can assure you it gives me very great pleasure to inform you that my efforts have been crowned with success during the past half year, and I am enabled to place you in a position to write off the whole of the coal defi-

ciency, and pay a 7½ and 7 per cent. dividend. It is true the balance left will not be large, but to prove to you that you can safely look forward to the present half year for a good working, I have prepared a balance-sheet showing the profits on the working for the two months (which I forward by this mail). You will perceive that you can safely leave it for this half year to write off a portion of the travelling suspense-fund, and the ordinary amount for depreciations; and I am also in hopes that the remark I made in my last report will also be able to be carried out—that is, an increase in dividend. I will now endeavour briefly to lay before you the remaining portion of my report.

Coals.—There are sufficient stocks of Australian coal on hand to last until December; a small ship is on the way from Australia, and may be expected shortly, to be followed by another cargo. I succeeded in purchasing 227 tons of Labuan coal at 15s. per ton, delivered on to the works, which with those in stock reduces the coal upon the whole to £1 2s. 2d. per ton.

Carbonizing.—The two benches of five retorts each, which have been in use since 1864, have been taken down; they will be replaced by seven retorts in each bed. The new retorts having arrived by the *Star of the South*, this work will be proceeded with without delay.

Extensions.—New mains have been laid in Prinsepps Street, and several houses are ordered to be lighted. The mains in Grange Road have been partially laid, and three houses lighted.

Gasholder.—We shall be ready with the tank as soon as the gasholder arrives. I perceive by last mail's advices it would not be shipped until the middle of August, and therefore cannot be expected here until December. It will be a great relief when it is at work, for during last month we sent out over 50,000 cubic feet per night, and for some nights this month 55,000 cubic feet per night, the average working capacity of the present holder being 56,000 cubic feet.

In the fitting department we are very busy, but just at the present this has to be neglected, as all hands are employed on the Chinese illuminations.

Lighting department corrected returns show an increase on the half year of 40 houses, fitted up with 593 lights; 8 public lamps; 3 boiling-stoves; 5 private lamps, and 3 contract lamps.

The engineer's report shows gas produced 9109 cubic feet per ton; paid for, 8333 cubic feet; loss or deficiency, 8¼ per cent.; all other details are given in the reports. Collection of the rental has been satisfactory on the half year, and the arrears about a month's rental. Purification still continues satisfactory with the oxide of iron and ammoniacal process, and the illuminating power has been maintained during the half year.

General buildings, works, and plant are all in a good state of repair.

Apologizing for my lengthened report, I trust the accounts will all be found correct, and the general arrangements satisfactory.—I have the honour to remain, &c.,

E. J. Wells.

Balance-Sheet, June 30, 1871.

Dr.		*Cr.*	
To Capital—		By Cash at bankers	£1,468 16 8
£5 paid on 2000 preference shares	£10,000 0 0	Ditto in hands of secretary	6 13 1
£5 „ 7009 ordinary ditto	35,045 0 0	Bills receivable	1,500 0 0
£3 „ 100 „ „	300 0 0		£2,975 9 9
£2 „ 25 „ „	50 0 0	Office furniture	180 0 0
£1 „ 50 „ „	50 0 0	Cost of works and plant, as per last statement	31,215 5 6
9184 shares.	£45,445 0 0	Add extensions during half year	1,023 18 8
			32,239 4 2
Debenture bonds	8,520 0 0	Purchase of land	1,118 2 8
Sundry creditors	3,504 8 3	Retort account	733 18 1
Insurance reserve-fund	17 1 11	Meter renewal account	220 2 9
Profit and loss	1,612 17 11	Stock on hand, and fittings in transit	7,185 15 3
		Amounts charged to capital for travelling expenses, rent, preliminary expenses, and interest on capital during construction, as per last balance-sheet (to be gradually written off)	10,840 5 11
		Less amount written off	175 13 3
			10,664 12 8
		Gas-meter rental, fittings, and sundries under collection to June 1	1,377 13 0
		Gas-meter rental, &c., for the month of June, and gas for public lamps for half year	2,040 6 7
			3,417 19 7
		Travelling expenses, suspense account, and sundries	364 3 2
	£59,099 8 1		£59,099 8 1

Profit and Loss Account, from January 1 to June 30, 1871.

Dr.		*Cr.*	
To Coal carbonized	£1,494 5 10	By Balance at profit and loss, Jan. 1, 1871	£1,440 10 8
Coal deficiency, suspense account, balance written off	896 14 11	Less amount declared as dividend, after deducting income-tax on preference shares	1,424 14 9
Lime and oxide	6 18 2		£15 15 11
Trade and general charges	249 13 10	Gas and meter rent	4,699 18 9
Rent, rates, and taxes	116 4 8	Products, profit on fittings, and sundries	1,175 9 5
Directors and auditors fees	205 5 0		
Salaries and collector's commission	484 3 10		
Wages	367 0 10		
Interest on loans and debentures	315 11 4		
Loss on exchange	46 18 7		
Bad debts and allowances	40 9 2		
Retort account	40 0 0		
Meter renewal account, written off	10 0 0		
Office furniture, written off	5 0 0		
Balance—profit for appropriation	1,612 17 11		
	£5,891 4 1		£5,891 4 1

The Chairman, in moving the adoption of the report, said he was afraid that some of the shareholders would think he was rather a fair-weather prophet. On the last occasion of their meeting he was laid up with illness. He was sorry not to have been present, because his custom through life had been not to avoid a difficulty but to face it, and the company were in difficulty at that time. However, he was glad now to be able to corroborate the statement in the report that during the past six months the directors had been able to accomplish more than they had anticipated. They had not only been able to write off the whole of the balance of the coal deficiency suspense account, but to return, from the 6 per cent. dividend paid on the last occasion, to the 7 per cent. previously paid on the ordinary shares of the company. To his mind this seemed to be a very satisfactory state of things; at the same time it was right he should point out that this had been effected without writing off the usual amount for depreciation. The directors thought, and, as he believed, wisely thought, that it would be desirable to get rid of the disagreeable item of coal deficiency from the accounts at once, even at the sacrifice of the opportunity to write off anything for depreciation, and to make up, in future half years, by appropriating, as they were able, a larger amount under that head. There was also an amount for travelling expenses in suspense, which would have to be dealt with in future half years. Notwithstanding these circumstances, he ventured to think that the accounts now presented were very satisfactory; for, while there was a decrease of £242 in the cost of coals, there was an increase of £78 in the gas-rental. The other items in the account were equally satisfactory. The only fear he had in his mind was that the shareholders might be led to suppose, from the working of the past half year, that the company would earn for them a 10 per cent. dividend in the next six months. Of course, it was not possible for him to predict what the working of the next half year might be; but he thought it right to point out that the profit of the past six months was made by an exceptionally low price for coals, and an exceptionally high return from sundries. Therefore, bearing these two points in mind, although he believed the next six months working would be very satisfactory, he hoped the shareholders would not jump to the conclusion that the company would make as much profit as they had done in the past. With these remarks, he begged to move—"That the report and accounts be received and adopted."

Mr. Le Feuvre (deputy-chairman) seconded the motion.

Mr. Hunter expressed his satisfaction with the report laid before the meeting, and, with respect to the chairman's caution against indulging in hopes of a 10 per cent. dividend, said he was well content with 7 per cent., if it was fairly and honestly earned.

Mr. Rice having stated that his examination of the balance-sheet was confirmatory of the statements of the chairman, as to the position of the company,

The motion was put, and carried unanimously.

On the motion of the Chairman, it was resolved—"That a dividend be declared on the preference shares at the rate of 7½ per cent., less income-tax, and on the ordinary shares at the rate of 7 per cent., free from income-tax, on the amount paid up on such shares, from the respective dates of payment to the 30th June last, such dividends to be payable on the 30th of November next."

The Chairman then moved—"That the thanks of the meeting be given to Mr. Wells and the local committee for the manner in which the affairs of the company have been carried on." On the last occasion some of the shareholders were inclined to blame the local committee in consequence of the coal deficiency, but it must be remembered that the local committee were placed in difficult circumstances. They were there without technical knowledge of gas-making, and with servants who were not altogether to be trusted in the absence of the manager. The energy which these gentlemen had displayed on all occasions was such as to entitle them to the thanks of the shareholders. Mr. Wells was exceedingly disappointed with reference to the coal deficiency, and on his return he exerted himself to bring the affairs of the company again into a satisfactory condition. He might fairly be congratulated on the result of the last half year's working, and the shareholders would be warranted in according to him the expression of their approval and confidence.

Mr. Collard seconded the motion, which was carried unanimously.

Mr. Morrison proposed a vote of thanks to the chairman and directors for their valuable services, and said, notwithstanding the caution recommended by the chairman, he could not help feeling that the accounts laid before the meeting indicated that the company would be in a position on the next occasion to pay a 10 per cent. dividend.

The motion having been seconded, was put and carried.

The Chairman, in acknowledging the vote, said the directors were always gratified to receive the assurance of the approval of the shareholders. They could not look into all matters out at Singapore as well as they wished, and were necessarily obliged to trust much to others. Their earnest desire was to make the company a success, and to the utmost of their ability they devoted themselves to that object. He had been talking about the possibility of paying 10 per cent., but, in truth, he would be strongly opposed to dividing profits at that rate at the next meeting, even though they were clearly earned, because he held it to be better for a company going on prosperously to gradually increase its dividends, rather than to make a sudden jump and assume a position which could not subsequently be sustained. In gas companies, a steady 7 or 8 per cent. as sure as Consols was much better than fluctuating dividends, ranging sometimes very high and sometimes very low—not but that he hoped some day to see this company pay 10 per cent.

Mr. Rice said when the company was formed it was considered that it would pay 15 per cent. to the shareholders, with coals estimated to cost 40s., whereas the directors were getting coal now at a much lower rate—not more than half the price.

The Chairman said Mr. Rice must not suppose that the company were obtaining coals at the price he had stated. There had been a small quantity purchased at 27s., but the average was over 30s. A short time ago the directors bought a quantity of Labuan coal at 15s., but it must not be assumed they could get the whole of their supply at that rate. The average cost for the last six months was 31s. 10d.

Mr. Rice said he had been under the impression that what he stated was really the cost.

The Chairman said it was entirely a question of freight. If the company could get freights from Australia at 15s., they could lay in coal at 23s. or 24s., but at times they had cost as high as 35s. The coals which the company purchased for 15s. per ton was a cargo of Labuan coal, sold by auction in consequence of the Government giving up the use of that description for steam purposes.

On the motion of Mr. Morrison, seconded by Mr. Hunter, thanks were voted to the engineer and secretary, Mr. R. King, for the attention paid by him to the duties of his office.

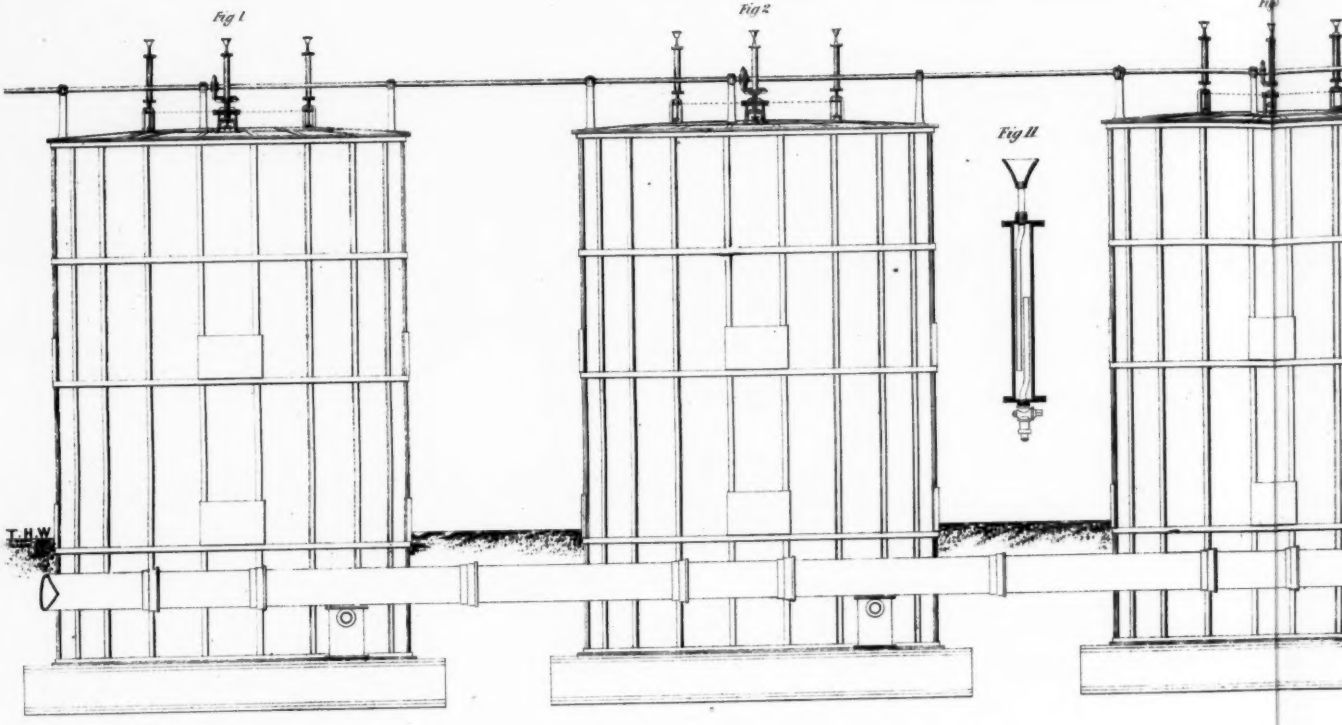
Mr. King acknowledged the vote, and the proceedings terminated.

Heating by Steam.—Among the many improvements in cities which the enforced rebuilding of Chicago has suggested is that of heating the entire town with steam in a manner very similar to that by which it was formerly lighted—by means of pipes running underground from some central reservoir to each house, thus doing away for ever with the annoyance caused by bad coal, damp wood, kindlings, &c. It may be doubted whether the time is ripe for so extensive an improvement; but when we remember that steam may be forced though these pipes to an immense distance, with a very slight diminution of heat, and at the rate of seven miles per minute, it does indeed seem as if the day could not be far distant when a practical application shall be made of what has long been theoretically admitted.—*New York Times.*

CHARTERED GAS C

SCRUBBERS

BECKTON WO



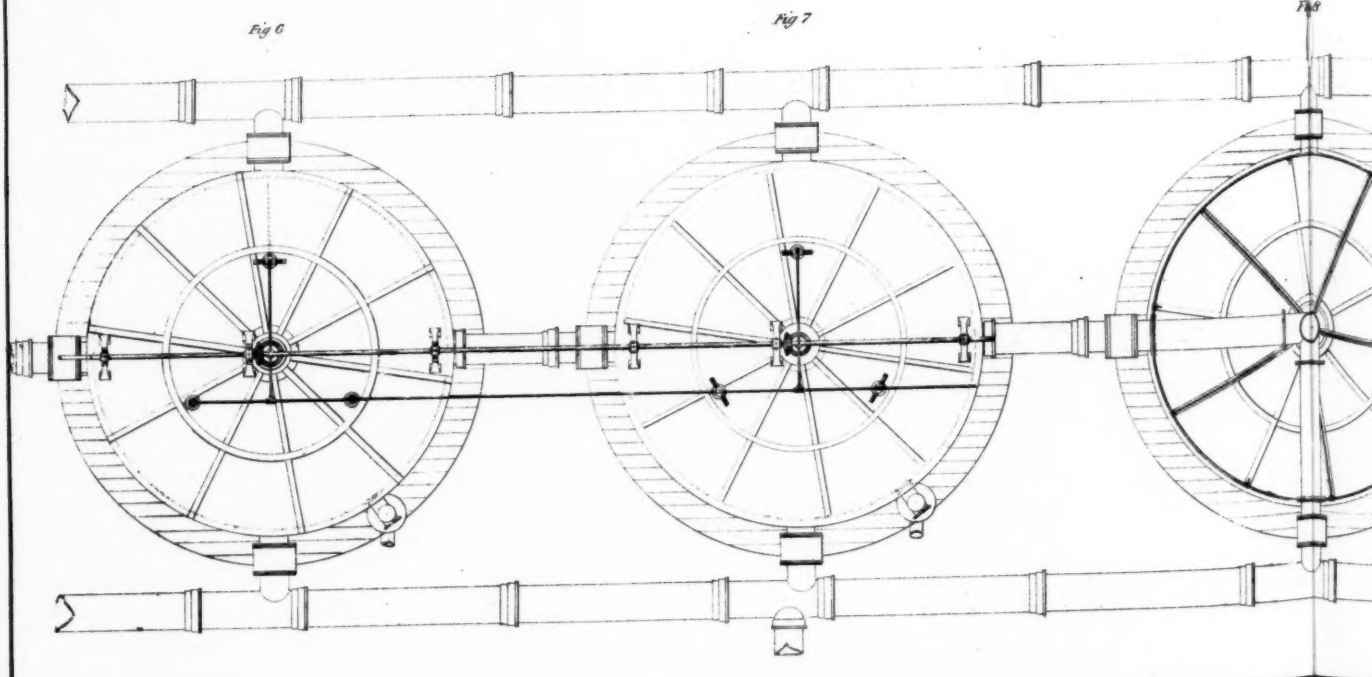


Photo-Lithographed by Whiteman & Bass London.

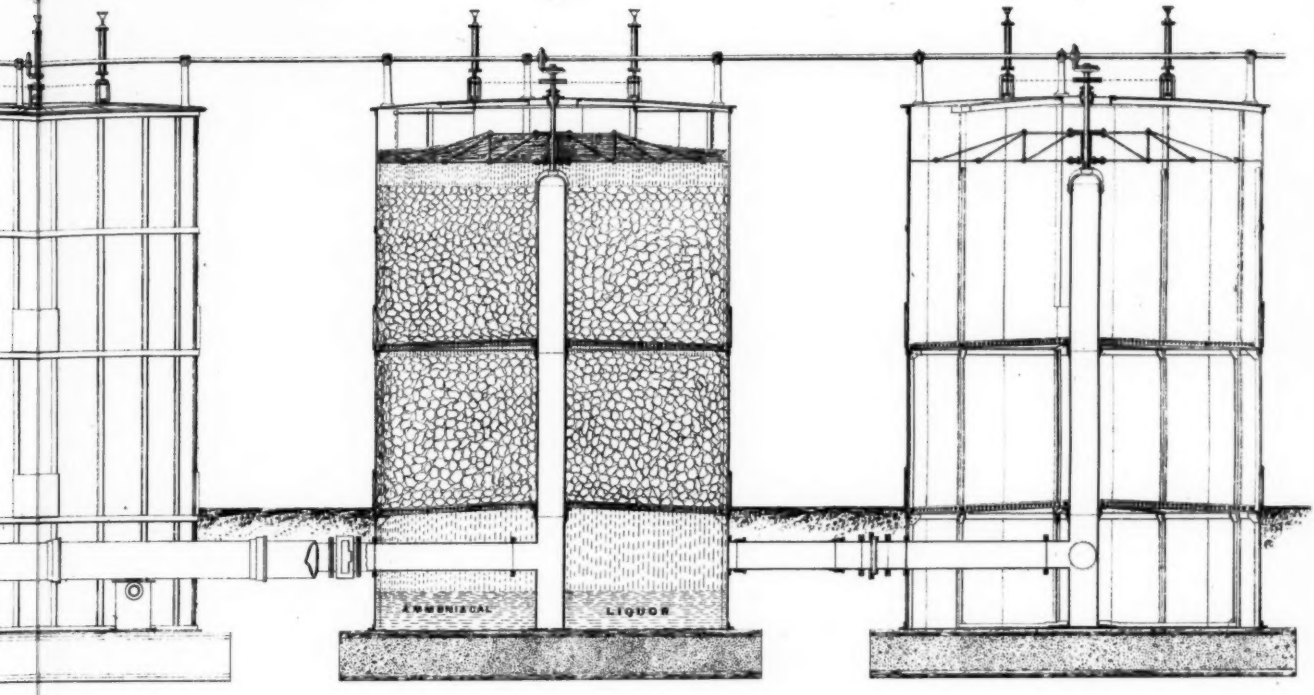
GAS COMPANY

ON WORKS

No 9 A.

Fig 4

Fig 5

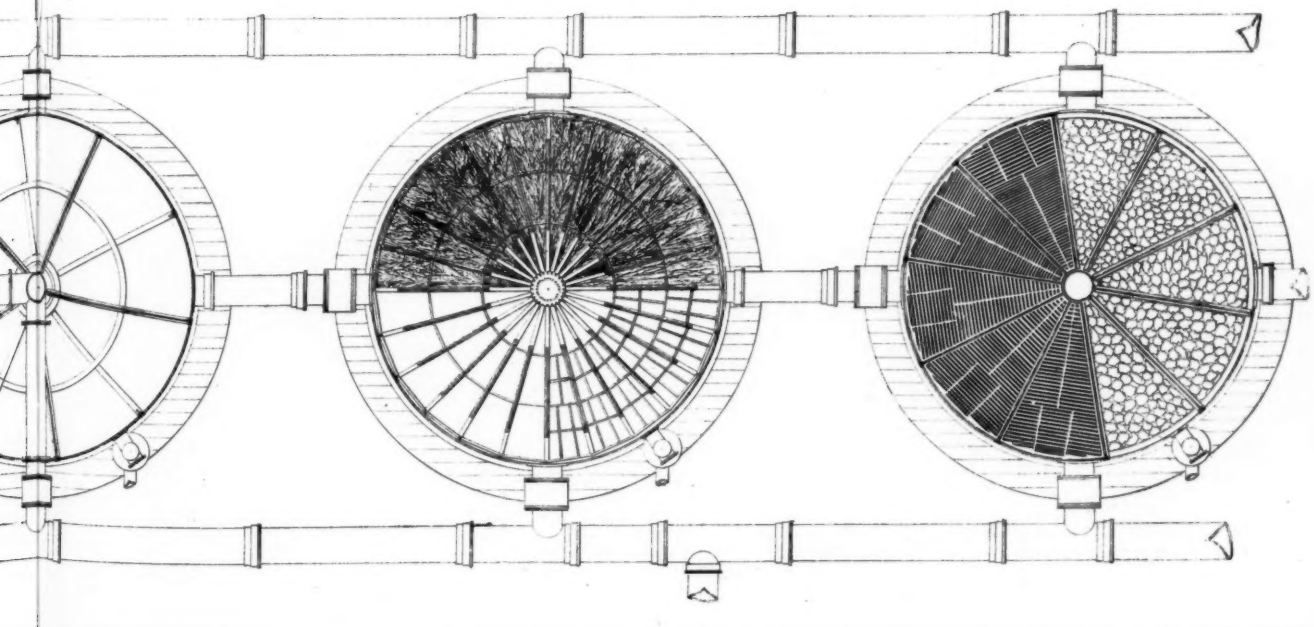


Scale

Fig 8

Fig 9

Fig 10



MANCHESTER CORPORATION GAS-WORKS.

Report of Gas Committee for the Year ending June 24, 1871.

The Gas Committee present the following report:—

Your committee submit herewith an abstract of the accounts of this department for the year ending June 24 last, and also the usual tabular statements.

Appendix A shows the amount of lamp and private rental derived from the townships within and beyond the city respectively, for the past two years.

Appendix B, the quantity of gas transmitted from the works in the daytime, and during the whole 24 hours of the day, in each month, for the years 1869-70 and 1870-71.

Appendix C, the number of meters in use on the 24th of June, 1870 and 1871.

Appendix D, the main-pipes laid to the 24th of June, 1870, and those laid and taken up during the year ending the 24th of June, 1871.

Appendix E, the amount of the gross profit, and the mode of its appropriation; the amount of borrowed money owing, and the excess of assets in each year from 1862 to the 24th of June last.

The rental for the past year (including meter-rents, but exclusive of Droylsden) has amounted to the sum of £231,431 13s. 9d., being an increase of £18,786 1s. 6d. upon that of the previous year. With the addition of the rental from the Droylsden district, (£3765 18s. 7d.) the total amount is £234,197 12s. 4d.

The amount of profit is £79,322 9s. 5d., as against £65,343 10s. 8d. in the previous year, and is appropriated as follows:—Interest, £18,329 0s. 5d.; transferred to capital account towards liquidation of the mortgage debt, £27,050 15s. 11d.; portion of surplus to be paid over for improvement purposes, £28,020 11s. 11d.; and the balance (£5922 1s. 2d.) retained towards repayment of the advances made to the improvement department in anticipation of future profits, in accordance with the arrangement sanctioned by the council on the 4th day of March, 1868. The balance of the amounts so advanced will be thereby reduced to £22,191 6s. 11d.

Your committee regard with satisfaction that the operations of the past year have enabled them, for the first time, to retain a portion of the profit towards repayment of the advances so made to the Improvement Committee, and hope that a continued increase in the demand for gas (which your committee have every reason to believe will take place) will enable the repayment, at an early period, of the remainder of the amounts advanced.

The number of consumers has increased 3·59 per cent., amounting now (including Droylsden) to 58,676, as against 56,642 the previous year.

The quantity of gas supplied has exceeded that of the previous year by 121,905,000 cubic feet, or 8·33 per cent., thus realizing the most sanguine expectations of your committee.

Your committee also submit the reports of Mr. John Leigh, the consulting and analytical chemist to this department, and Messrs. Edward Andrew, Dando, and Co., the accountants appointed by the council to audit the accounts for the past year:—

"To the Chairman of the Manchester Gas Committee.

"Sir,—I have the honour to report to you that the average illuminating power of the Manchester gas during the past year has been equal to that of 20·32 candles.

"The gas has been tested photometrically at the Gaythorn and at the Rochdale Road stations almost daily. The standard of comparison adopted has been the light of a London standard sperm candle, burning at the rate of 120 grains per hour, the consumption of gas having been reduced to 5 cubic feet per hour.

"The gas has been tested daily for sulphuretted hydrogen and for ammonia. It has scarcely at any time contained a trace of sulphuretted hydrogen, and the quantity of ammonia has been very small.

"From naphthaline, oily, and tarry matter it has also been nearly free.

"I have the honour to be, sir,

"Yours very respectfully,

(Signed) "John Leigh, M.R.C.S., &c.

"*York Chambers, Manchester, Sept.* 25, 1871."

"To the Gas Committee, Manchester Corporation.

"Gentlemen,—We have much pleasure in presenting our report on the gas accounts, having completed our examination of the latter for the year ending 24th of June, 1871.

"We beg to state that we have carefully audited the books and accounts (have given the mortgage debt, gas-rentals, and collectors accounts our special attention), and are glad to certify that we find everything correct.

"We are, your obedient servants,

(Signed) "Edwd. Andrew, Dando, and Co."

"61, *Princess Street, Manchester, Sept.* 4, 1871."

The outlay on capital account during the past year has amounted to £56,400 13s., as will be seen on reference to the general summary of receipts and expenditure.

Your committee have further the satisfaction to report that the reconstruction and extension of the works, which have been in progress for several years past, are rapidly drawing to a conclusion. At the Gaythorn station no expenditure on capital account is now taking place. At the Rochdale Road station the two 3-lift gasholders are almost ready for use; the completion and fitting up of No. 3 retort-house are being proceeded with, as also the additional set of four purifiers, the new wrought-iron scrubbers, and the additional revivifying shed, the whole of which your committee anticipate will be available, if required, for the approaching winter season.

On behalf of the Gas Committee,

Joseph Lamb, Deputy-Chairman.

Gas Offices, Albert Chambers, Albert Square, Sept. 29, 1871.

Profit and Loss Account, for the Year ending June 24, 1871.

Dr.				*Cr.*			
To Cannel			£108,325 10 10	By Gas-rental—			
Retort men's wages			19,487 9 8	Within the city—			
Retorts, materials, and setting			4,701 11 6	Private consumers	£171,929 4 2		
Purifying charges			3,151 5 1	Meter-rents	3,282 19 4		
Labourers wages, and repairs, &c., of works—				Public lamps	9,436 12 4		
Gaythorn station	£4,840 18 3					£184,648 15 10	
Rochdale Road station	3,405 14 7			Beyond the city—			
Street-mains	5,052 10 11			Private consumers	£45,489 14 3		
Droylsden works	428 14 5			Meter-rents	740 6 5		
		13,727 18 2		Public lamps	3,318 15 10		
Salaries		8,386 19 11				49,548 16 6	
Collectors poundage, &c.		3,852 16 6					£234,197 12 4
Chief and other rents and rates, &c.—				Coke		18,064 1 7	
Chief rents	£202 3 6			Tar		12,269 12 9	
Rates and rents of offices	714 13 0			Ammonia water		5,347 16 6	
Rates on stations and street-mains	4,436 13 11						
		5,353 10 5					
Income-tax		1,111 1 0					
Amount transferred to capital for depreciation of works—							
Gaythorn station—							
4 p. ct. on buildings (£82,386 16s. 2d.)	£3,295 9 5						
5 p. ct. on apparatus (£42,346 7s. 10d.)	2,117 6 4						
		£5,412 15 9					
Rochdale Road station—							
4 p. ct. on buildings (£90,268 1s. 4d.)	£3,610 14 5						
5 p. ct. on apparatus (£40,785 15s.)	2,039 5 8						
		5,650 0 1					
Droylsden works—							
4 p. ct. on buildings (£7,626 3s. 6d.)	£305 2 11						
5 p. ct. on apparatus (£8,064 11s. 7d.)	403 4 7						
2½ p. ct. on main-pipes (£2,753 15s.)	68 16 10						
10 p. ct. on meters and service-pipes (£891 10s. 1d.)	89 3 0						
		866 7 4					
Street-mains store (Poland Street)—							
4 p. ct. on buildings (£1793 0s. 5d.)	£71 14 4						
5 p. ct. on apparatus (£470 18s. 9d.)	23 10 11						
		95 5 3					
Street-mains—							
2½ per cent. on main-pipes (£210,835 8s. 11d.)		5,270 17 8					
Hired meters and fittings—							
10 per cent. on £22,974 9s. 4d.		2,297 8 11					
Meter-proving apparatus—							
10 per cent. on £97 14s. 4d.		9 15 5					
		19,602 10 5					
Stationery and advertising		393 15 7					
Law stationery, receipt, postage, and deed stamps, &c.		236 8 10					
Clothing for inspectors, &c.		224 13 0					
Subscriptions to Infirmary, Eye Hospital, &c.		76 15 0					
Repairs of hired meters		122 13 8					
Miscellaneous expenses		436 18 1					
Commission, &c., charged by bankers		494 6 9					
Bad debts and allowances		870 9 4					
Balance carried down		79,322 9 5					
		£269,879 3 2					£269,879 3 2
Interest on loans, &c. (less income-tax)		£18,329 0 5		By balance brought down, being gross profit on the year's working			£79,322 9 5
Amount transferred to capital account, towards liquidation of mortgage debt		27,050 15 11					
Portion of surplus payable to the improvement department		28,020 11 11					
Balance, retained towards repayment of the advances made to the improvement department in anticipation of future profits		5,922 1 2					
		£79,322 9 5					£79,322 9 5

General Summary of Receipts and Expenditure on Capital and Revenue Account, June 24, 1871.

Dr.			*Cr.*			
To Balance in the bank, June 24, 1870	£3,761 1 4		By Loans repaid			£14,363 7 7
Ditto in the treasurer's hands, June 24, 1870	383 12 6		Improvement and Chorlton-upon-Medlock Committees—			
Ditto of sums owing to and by the committee, including stocks on hand, June 24, 1870	46,448 19 2		Surplus for the year ending June 24, 1870	£24,071 11 0		
	£50,593 13 0		Advanced in anticipation of future profits	3,750 0 0		
Balance of profit and loss account, as per statement		33,942 13 1			27,821 11 0	
Loans received		30,015 15 3	Expenditure on capital account, viz.—			
Materials, &c., sold (capital account) as per statement—			Gaythorn station	£6,858 0 5		
Gaythorn station	£76 11 4		Rochdale Road ditto	26,959 6 0		
Rochdale Road station	20 18 1		Droylsden works	71 7 2		
Droylsden works	48 5 4		Street-mains	13,823 11 8		
Bradford Road	34 11 0		Service-pipes (one moiety)	1,003 3 7		
	180 5 9		Hired meters	7,685 4 2		
Amount transferred from revenue account—					56,400 13 0	
For depreciation of works		19,602 10 5	Balance in the bank, June 24, 1871	£11,069 19 3		
Liquidation of mortgage debt		27,050 15 11	Ditto in the treasurer's hands, June 24, 1871	139 19 10		
					11,209 19 1	
			Ditto of sums owing to and by the committee, including stocks on hand, June 24, 1871		51,590 2 9	
	£161,385 13 5				£161,385 13 5	

Statement of Assets and Liabilities, June 24, 1871.

PERMANENT ASSETS.

Lower King Street station—			
Land (now let to the Watch Committee, at an annual rent of £300)			£7,500 0 0
Gaythorn station—			
Land, buildings, and apparatus, as per last report—			
Land	£55,435 6 10		
Buildings	82,386 16 2		
Apparatus	42,346 7 10		
Less—		£180,168 10 10	
Materials sold	£76 11 4		
Depreciation	5,412 15 9		
		5,489 7 1	
		£174,679 3 9	
One year's outlay to June 24, 1871—			
Yard-mains	568 1 8		
New purifying-house	3,946 15 10		
New engine and exhauster house	47 1 5		
New workshops	1 13 1		
New cannel-stores, retort-house, &c.	6 0 0		
New offices and boundary walls	188 18 1		
River Street wall	8 8 0		
New meter and governor house	469 13 1		
No. 6 tank	14 3 7		
No. 6 gasholder	1,338 7 6		
New coke hoist	262 11 6		
New weighing machine	8 0 0		
Street mains store	8 6 8		
		6,858 0 5	
			181,537 4 2
Rochdale Road station—			
Land, buildings, and apparatus, as per last report—			
Land	£26,796 3 1		
Buildings	109,608 3 9		
Apparatus	42,396 0 9		
Less—		£178,800 7 7	
Materials sold	£90 18 1		
Depreciation	5,650 0 1		
		5,670 18 2	
		£173,129 9 5	
One year's outlay to June 24, 1871—			
Yard-mains	£1,625 8 5		
New purifying-house	2,004 16 7		
New engine and exhauster house	438 19 6		
New workshops	24 13 8		
New cannel-stores (adjoining Dewhurst Street	50 11 10		
No. 3 retort-house	833 17 6		
No. 4 ditto	498 14 8		
New offices	321 6 9		
New railway machine office	269 5 9		
New meter and governor house	10 19 2		
New experimental apparatus	142 13 10		
New tar and ammonia water pumps	7 11 1		
New lime, &c., shed	1,243 2 7		
New coke-hoist	158 10 7		
New gates, Gould Street entrance	272 12 4		
Ditto, Tebbutt Street ditto	9 12 6		
Newtown tanks	4,102 5 10		
Ditto gasholders	14,003 5 8		
River wall, Newtown	31 18 3		
		26,959 6 0	
			200,088 15 5
Droylsden works—			
Buildings and apparatus, as per last report—			
Buildings	£7,626 3 6		
Apparatus	11,709 16 8		
Less—		£19,336 0 2	
Materials sold	£48 5 4		
Depreciation	866 7 4		
		914 12 8	
		£18,421 7 6	
One year's outlay to June 24, 1871—			
Buildings	£5 4 6		
Apparatus	15 0 7		
Main pipes	5 6 5		
Meters and service pipes	45 15 8		
		71 7 2	
			18,492 14 8
Bradford Road—			
Land purchased, as per last report	£30,286 9 0		
Less—materials sold, &c.	55 3 0		
		£30,231 6 0	
One year's outlay to June 24, 1871		20 12 0	
			30,251 18 0
Street-mains store (Poland Street)—			
Land, buildings, and apparatus, as per last report—			
Land	£1,406 0 0		
Building	1,793 0 5		
Apparatus	470 18 9		
Less—		£3,669 19 2	
Depreciation		95 5 3	
			3,574 13 11
Street-mains—			
Main-pipes, as per last report	£210,835 8 11		
Less—depreciation	5,270 17 8		
		£205,564 11 3	
One year's outlay to June 24, 1871		13,823 11 8	
			219,388 2 11
Service-pipes—			
Service-pipes laid, as per last report		£16,998 8 2	
Moiety of year's outlay charged to capital account		1,003 3 7	
			18,001 11 9
Hired meters, &c.—			
Outlay, as per last report	£22,974 9 4		
Less—depreciation	2,297 8 11		
		£20,677 0 5	
One year's outlay to June 24, 1871		7,685 4 2	
			28,362 4 7
Meter-proving apparatus—			
Outlay, as per last report		£07 14 4	
Less—depreciation		9 15 5	
			87 18 11
Total amount of permanent assets			£707,285 4 4

FLOATING ASSETS.

Cannel, retorts, and other materials on hand—		
Revenue account	£37,436 13 6	
Gas-rents, and sundry accounts due to the committee—		
Revenue account	47,152 4 11	
Extension ditto	86 0 2	
Amount paid to the improvement department, in anticipation of future profits	28,113 8 1	
Balance in the bank	11,069 19 3	
Ditto in the treasurer's hands	139 19 10	
		123,998 5 9
		£831,283 10 1
Excess of assets, June 24, 1871		£313,912 11 9
Ditto of assets, June 24, 1870		286,861 15 10
Increase, being the amount charged upon the profit for the past year towards liquidation of the mortgage debt		£27,050 15 11

LIABILITIES.

Mortgage debt—			
Act of 1844—1st charge	£87,001 0 9		
Ditto—2nd ditto	24,847 18 4		
Ditto of 1854	43,610 0 0		
Ditto of 1858	103,552 10 0		
Ditto of 1867	167,722 0 4		
Total amount secured by mortgage		£426,743 9 5	
Sums advanced, not secured by mortgage at this date		21,850 0 0	
			£448,593 9 5
Purchase of land, the purchase-money being left in the hands of the committee at interest			1,750 0 0
Sundry accounts owing—			
Revenue account		£19,305 12 6	
Extension ditto		3,802 3 0	
			23,107 15 6
Deposits in hand			9,977 0 4
			£483,428 5 3
Portion of surplus for the year ending June 24, 1871, payable to the improvement department			28,020 11 11
Balance of surplus, appropriated towards repayment of the advances made to the improvement department in anticipation of future profits			5,922 1 2
Balance, being excess of assets			313,912 11 9
			£831,283 10 1

[Appendix A.]

Statement of the Lamp and Private Rental (including Meter-Rents) derived from the Townships within and beyond the City respectively, for the Years 1869-70 and 1870-1.

	Half Year ending Dec. 25, 1869.		Half Year ending June 24, 1870.		Total for the Year 1869-70	Half Year ending Dec. 25, 1870.		Half Year ending June 24, 1871.		Total for the Yr. 1870-71.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Within the city—										
Township of Manchester—										
Private rental	47823 17 10		50942 12 7			52274 1 1		56111 11 1		
Public lamps	2713 16 5		2470 5 1			2747 9 3		2424 9 11		
		50537 14 3		53412 17 8			55021 10 4		58536 1 0	
Other townships—										
Private rental	30273 15 6		32239 1 9			32488 2 10		34338 8 6		
Public lamps	2065 15 8		2098 5 3			2123 1 3		2141 11 11		
		32339 11 2		34337 7 0			34611 4 1		36480 0 5	
Total within the city		82877 5 5		87750 4 8	170627 10 1		89632 14 5		95016 1 5	184648 15 10
Beyond the city—										
Private rental	19275 0 4		19855 7 9			21625 5 0		22054 9 7		
Public lamps	1417 19 4		1469 14 9			1521 9 9		1581 13 7		
Total beyond the city		20692 19 8		21325 2 6	42018 2 2		23146 14 9		23636 3 2	46782 17 11
Gross rental		103570 5 1		109075 7 2	212645 12 3		112779 9 2		118652 3 6	231431 13 9
Add Droylsden										2765 18 7
Total										£234197 12 4

Within the city: Gross rental (1869-70) £170,627 10s. 1d.; ditto (1870-71) £184,648 15s. 10d.; increase, £14,021 5s. 9d. Beyond the city: Gross rental (1869-70) £42,018 2s. 2d.; ditto (1870-71) £46,782 17s. 11d.; increase, £4764 15s. 9d. Total Gross rental: (1869-70) £212,645 12s. 3d.; ditto (1870-71) £231,431 13s. 9d.; increase, £18,786 1s. 6d.

[Appendix B.]

Comparative Statement of the Quantity of Gas transmitted from the Works, in the Day-time and during the Twenty-four Hours, for the Year 1870-71.

	Day-time.				Twenty-four Hours.			
	1869-70.	1870-71.	Increase.	Decrease.	1869-70.	1870-71.	Increase.	
	Cubic Feet.	Cubic Feet.	Per cent.	Per cent.	Cubic Feet.	Cubic Feet.	Per cent.	
July	14,269,000	12,532,000	....	12·17	56,030,000	57,313,000	2·28	....
August	15,408,000	13,503,000	....	12·36	69,485,000	71,958,000	3·55	....
September	17,594,000	16,125,000	....	8·34	96,537,000	99,412,000	2·97	....
October	22,011,000	27,887,000	26·69	....	140,413,000	153,110,000	9·04	....
November	27,347,000	33,246,000	21·57	....	174,675,000	200,995,000	15·06	....
December	37,849,000	45,512,000	20·24	....	210,153,000	229,553,000	9·23	....
January	36,768,000	46,872,000	27·48	....	195,657,000	219,414,000	12·14	....
February	24,052,000	26,782,000	11·35	....	153,534,000	164,316,000	7·02	....
March	23,939,000	22,338,000	....	6·68	134,215,000	136,527,000	1·72	....
April	17,234,000	21,163,000	22·79	....	92,510,000	101,617,000	9·84	....
May	15,118,000	16,251,000	7·49	....	71,673,000	77,208,000	7·72	....
June	12,626,000	14,469,000	14·59	....	55,764,000	59,889,000	7·21	....
	264,215,000	296,680,000	12·28	....	1,450,646,000	1,571,312,000	8·31	....
Add Droylsden	..	..	....	....		15,565,000	16,804,000	7·96	....
Total	..	..	....	....	1,466,211,000	1,588,116,000	8·33	....

During the day-time (1869-70) 264,215,000 cubic feet; (1870-71) 296,680,000 cubic feet; increase, 32,365,000 cubic feet. During the twenty-four hours (1869-70) 1,450,646,000 cubic feet; (1870-71) 1,571,312,000 cubic feet; increase, 120,666,000 cubic feet; add increase at Droylsden, 1,239,000 cubic feet; total increase, 121,905,000 cubic feet.

[Appendix C.]

Table showing the Number of each Size of Meter in use on the 24th of June, 1870 and 1871 respectively, including those on Hire.

Size of Meters.	Townships within the City.														Townships beyond the City.		Total.		Increase.	Decrease.
	Manchester.		Chorlton-u.-Medlock.		Hulme.		Ardwick.		Beswick.		Cheetham.		Total within the City.							
	1870.	1871.	1870.	1871.	1870.	1871.	1870.	1871.	1870.	1871.	1870.	1871.	1870.	1871.	1870.	1871.	1870.	1871.		
1 light	87	54	25	12	30	28	16	17	4	..	3	3	165	114	7	5	172	119	..	53
2 lights	10367	10694	3373	3369	6334	6314	2094	2241	227	243	1509	1514	23904	24375	6686	7118	30590	31493	903	..
3 „	4196	4027	1967	2103	2087	2147	616	649	31	23	1008	1054	9905	10003	2426	2597	12331	12600	269	..
5 „	2509	2556	1335	1411	621	645	261	276	14	15	661	731	5401	5634	1741	1986	7142	7620	478	..
10 „	1378	1426	376	426	166	182	88	97	5	6	189	194	2202	2331	680	745	2882	3076	194	..
20 „	760	783	101	135	56	62	36	40	1	1	44	47	998	1068	250	275	1248	1343	95	..
30 „	312	336	29	27	22	28	10	10	3	3	20	19	396	423	83	88	479	511	32	..
45 „	46	41	4	4	3	1	2	3	..	..	..	..	55	49	9	9	64	58	..	6
50 „	176	212	12	17	12	10	9	9	2	2	10	12	221	262	44	47	265	309	44	..
60 „	101	93	2	2	13	15	1	3	..	..	5	6	122	119	15	14	137	133	..	4
80 „	74	82	6	6	5	7	2	1	..	..	..	..	87	96	9	10	96	106	10	..
100 „	115	119	8	7	7	8	5	6	1	1	5	6	141	147	26	27	167	174	7	..
150 „	36	42	6	6	5	5	2	2	..	..	1	1	50	56	9	10	59	66	7	..
200 „	15	14	..	..	2	4	..	..	..	..	3	3	20	21	8	7	28	28	..	..
250 „	1	2	..	..	..	..	..	..	1	1	1	..	3	3	..	..	3	3	..	..
300 „	14	16	1	1	2	2	..	..	..	..	2	3	19	22	9	9	28	31	3	..
500 „	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	1	..	..
600 „	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..
Total	20187	20498	7245	7526	9365	9458	3142	3354	289	295	3461	3593	43689	44724	12003	12948	55692	57672	2043	63

Add Droylsden, 1004; total meters, 58,676. Add Droylsden, increase 54; total increase, 2097. Deduct decrease, 63; net increase, 2034 meters = 3·59 per cent.

Statement showing the Number and Sizes of Meters on Hire on June 24, 1870 (included in the above Table).

	1 Light.	2 Lights.	3 Lights.	5 Lights.	10 Lights.	20 Lights.	30 Lights.	50 Lights.	60 Lights.	80 Lights.	100 Lights.	150 Lights.	Total, 1870.	Total, 1871.	Increase.
Within the city	113	10728	3438	1401	308	80	26	8	7	3	8	1	12532	16121	3589
Beyond the city	4	2103	754	527	62	5	1	1	2	..	..	..	2903	3459	556
Total	117	12831	4192	1928	370	85	27	9	9	3	8	1	15435	19580	4145

[Appendix D.]

Mains Laid and Taken up during the Year ending June 24, 1871.

Laid.	Diam. 2 in.	Diam. 3 in.	Diam. 4 in.	Diam. 5 in.	Diam. 6 in.	Diam. 8 in.	Diam. 9 in.	Diam. 10 in.	Diam. 12 in.	Diam. 15 in.	Diam. 16 in.	Diam. 18 in.	Diam. 20 in.	Diam. 24 in.	Total Length.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Within the city—															
Manchester	8063	2620	943	26	422	..	..	..	18	..	50	295	..	277	12714
Chorlton-upon-Medlock	1825	1072	365	6	..	..	..	..	..	..	..	..	..	..	3268
Hulme	1080	15	72	..	138	..	..	..	652	..	274	483	..	90	2804
Cheetham	1305	198	463	..	112	..	19	197	..	..	..	..	..	..	2294
Ardwick (including Beswick)	3281	453	1284	282	15	..	..	..	..	..	..	..	..	..	5315
	15554	4358	3127	314	687	..	19	197	670	..	324	778	..	367	26395
Beyond the city	7121	3504	691	83	853	699	..	..	1238	..	..	928	..	..	15117
Total	22675	7862	3818	397	1540	699	19	197	1908	..	324	1706	..	367	41512
Taken up.															
Within the city	1348	1023	1034	22	418	26	..	..	522	225	..	130	64	18	4830
Beyond the city	839	66	55	57	..	..	58	..	870	..	..	..	..	..	1945
Total	2187	1089	1089	79	418	26	58	..	1392	225	..	130	64	18	6775

Net increase during the year, 34,737 yards.

[APPENDIX D—*continued.*]

Summary.

	Diam. 2 in.	Diam. 3 in.	Diam. 4 in.	Diam. 5 in.	Diam. 6 in.	Diam. 7 in.	Diam. 8 in.	Diam. 9 in.	Diam. 10 in.	Diam. 11 in.	Diam. 12 in.	Diam. 13 in.	Diam. 14 in.	Diam. 15 in.	Diam. 16 in.	Diam. 18 in.	Diam. 20 in.	Diam. 22 in.	Diam. 24 in.	Diam. 30 in.	Total Length
Pipes laid to June 24, 1870—	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Within the city	192058	116735	45079	15023	27855	756	14421	13525	1241	353	28708	309	7213	5017	3719	4580	388	477	6433	2513	486403
Beyond the city	86094	46432	41466	6174	22257	410	22551	10753	721	1808	17447	..	737	37	..	682	..	..	315	..	257884
Pipes laid during the year ending June 24, 1871—	278152	163167	86545	21197	50112	1166	36972	24278	1962	2161	46155	309	7950	5054	3719	5262	388	477	6748	2513	744287
Within the city	15554	4358	3127	314	687	..	..	19	197	..	670	..	..	..	324	778	..	..	367	..	26395
Beyond the city	7121	3504	691	83	853	..	699	..	..	..	1238	..	..	..	..	928	..	..	..	..	15117
	300827	171029	90363	21594	51652	1166	37671	24297	2159	2161	48063	309	7950	5054	4043	6968	388	477	7115	2513	785799
Deduct taken up	2187	1089	1089	79	418	..	26	58	..	..	1392	..	..	225	..	130	64	..	18	..	6775
	298640	169940	89274	21515	51234	1166	37645	24239	2159	2161	46671	309	7950	4829	4043	6838	324	477	7097	2513	779024
Add, mains in connexion with the Droylsden Works	5567	2197	4155	418	1327	..	351	..	606	..	..	..	..	..	..	..	..	..	..	..	14621
Total	304207	172137	93429	21933	52561	1166	37996	24239	2765	2161	46671	309	7950	4829	4043	6838	324	477	7097	2513	793645*

* Total, 793,645 yards, or 450¾ miles and 325 yards.

[APPENDIX E.]

Statement showing the Amount of Gross Profit, and the Mode of its Appropriation; also the Amount of Borrowed Money Owing, and the Excess of Assets, &c., from the Year 1862 to the present Date.

Year ending June 24.	Profit.	Maximum Price of Gas, per 1000 Feet, within the City.	Appropriation of Gross Receipts.			Appropriation of Surplus.		Borrowed Money Owing.	Amount charged to Revenue in respect of Depreciation of Works and Mains.	Excess of Assets.
			Interest.	Liquidation of Mortgage Debt.	Surplus.	Improvement Purposes.	Retained for Repayment of Advance to Imprve. Com.			
	£ s. d.	s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1862.	42667 7 1	4 0	15482 3 2	19330 14 4	7854 9 7	7854 9 7	....	382539 7 10	12179 4 11	126591 4 6
1863.	55804 12 9	Half year 4 0 " 3 9	14932 17 8	18609 17 4	22261 17 9	22261 17 9	....	362877 8 10	12666 18 11	145201 1 10
1864.	59545 18 9	Half year 3 9 " 3 6	13888 12 10	17810 1 0	27847 4 11	27847 4 11	....	335808 16 9	12690 12 9	163011 2 10
1865.	56432 4 5	Half year 3 6 " 3 2	13086 10 9	17587 0 11	25758 12 9	25758 12 9	....	306931 2 2	13050 6 6	180598 3 9
1866.	52553 2 10	3 2	13252 13 0	19784 2 0	19516 7 10	19516 7 10	....	347472 2 11	13817 2 9	200382 5 9
1867.	47323 0 4	3 2	14167 11 7	19898 0 4	13257 8 5	13257 8 5	....	331725 9 7	14628 8 6	220280 6 1
1868.	49546 4 7	3 2	14314 17 9	20246 0 5	14985 6 5	14985 6 5	....	351035 10 4	15173 2 5	239685 15 6
1869.	52736 18 4	3 2	15467 12 6	22688 14 4	14580 11 6	14580 11 6	....	395469 8 5	15387 15 7	262374 9 10
1870.	65343 10 8	3 2	16784 13 8	24487 6 0	24071 11 0	24071 11 0	....	432941 1 9	17633 5 10	286861 15 10
1871.	79322 9 5	3 2	18329 0 5	27050 15 11	33942 13 1	28020 11 11	5922 1 2	448593 9 5	19602 10 5	313912 11 9
Total.	561275 9 2		149706 13 4	207492 12 7	204076 3 3	198154 2 1	5922 1 2	....	146829 8 7	....

FAILURE OF THE WATER SUPPLY AT BRIGHTON.

A specially convened Meeting of the Town Council was held in the Pavilion, on Thursday, Oct. 26, "To consider the extraordinary position in which the town is placed in consequence of the failure of the water supply."—The MAYOR occupied the chair, and there was a full attendance of members.

The following special report of the town surveyor was presented:—

WATER SUPPLY.

"*To the Works Committee.*

"*Oct.* 25, 1871.

"Gentlemen,—I have to report to you that the supply of water to the town, by the Brighton, Hove, and Preston Constant Service Water Company, has been very deficient during the last three days, and that yesterday and to-day the supply has entirely ceased in all the higher districts, and in many other parts, and there is not anywhere an adequate supply of water, so that the town would be in the greatest danger in case of fire.

"The supply has entirely ceased to the public baths, the Grand Hotel, the town-hall, and elsewhere, and the Albion Hotel, the market, and other places even on the low level, have a short supply.

"On inquiry at the water company' soffices, I received permission to go over the works, and I find that the town is supplied by three engines, one of 150-horse power, and one of 100-horse power, at the Lewes Road, and one of 150-horse power at the Goldstone Bottom works.

"It appears that the engine and pumps at the Goldstone Bottom works have been for upwards of a month past under repair, and that the valves, buckets, and rods were sent to London to be put in order, and that on Monday last, whilst the repairs at Goldstone Bottom were still in progress, the larger engine at the Lewes Road also became useless, owing to a defect in the pumps.

"The quantity of water required daily for the supply of the town is from 2½ to 3 million gallons, and the small engine which remains at work at the Lewes Road is not equal to supply much more than half that quantity, if so much.

"The buckets, rods, and gearing, which had been sent to London for Goldstone Bottom, have now been returned, and are being fixed in their places; and I am informed that it is anticipated that the engines will be at work again in the course of to-morrow; but it is greatly to be regretted that there were not duplicate engines at Goldstone Bottom, or, at any rate, duplicate buckets, clacks, and rods to the pumps.—I am, gentlemen, your most obedient servant,

(Signed) "PHILIP C. LOCKWOOD."

The MAYOR having stated the object of the meeting,

The TOWN-CLERK read the following letter from Mr. W. Blaber, the chairman of the water company:—

"*Brighton, Hove, and Preston Constant Service Water-Works Company,*

"12, *Bond Street, Brighton, Oct.* 26, 1871.

"*To the Town Council of the Borough of Brighton.*

"Gentlemen,—Having been informed that a meeting of your body is convened for three o'clock to-day, to consider the inefficient state of the water supply to the town during the last few days (an event which I and my brother directors deeply deplore), I beg to be allowed to attend the meeting, in order to explain the cause of the accident. I have, at the same time, to request the favour of being placed in communication with your town surveyor, so that I may have the advantage of his advice and assistance in devising the best means of preventing such an occurrence in future.—I am, gentlemen, your obedient servant,

(Signed) "WILLIAM BLABER.

"10 a.m.—Our engine at Goldstone Bottom is now at work."

The TOWN-CLERK said he had promised to let Mr. Blaber know the decision of the meeting.

Alderman HALLETT said the request could not be acceded to at that stage of the proceedings. Many years ago a former water company, which did not give satisfaction, was supplanted by the present, but by the amalgamation of their interests, the town was in no better a state now than then in this respect—viz., that the corporation had no power to see that necessary precautions were taken. The present state of affairs he attributed solely to sheer and shocking carelessness on the part of the managing directors of the company. In 1865 the company had only the two engines at the Lewes Road works, neither of which, by itself, was sufficient to supply the town. With commendable prudence the company went to a large expense in erecting new works at Goldstone Bottom, so as to meet the increasing requirements of the town, and to prevent any inconvenience in the case of an emergency. However, the facts of the present occurrence he believed to be these. About six weeks ago the engine at Goldstone Bottom was taken to pieces for examination and repairs. The buckets, valve, &c., were sent to London, and, apparently no exertions were made to have them returned at the earliest possible moment. The consequence was that when an accident happened to one of the Lewes Road engines, the Goldstone Bottom engine was of no use, and the town was left wholly dependent on the smallest engine of the three. In view of such gross mismanagement as this, he considered it the duty of the council to apply to Parliament to get some kind of power to control the water company; or, if necessary, to take it entirely out of their hands. While the directors of the company received some £800 amongst them per annum for their services, their policy seemed to be to charge the utmost they could, and to spend no more money in preventing risk than would just keep them safe from the interference of the corporation. He believed that such an application to Parliament as he proposed was always received with favour, Parliament being desirous that corporations should take both the gas and water supply of towns into their own hands. With a view of encouraging the Works Committee in any resolution they might place before the next Town Council meeting on Tuesday, he should move. "That the town-clerk do at once confer with his parliamentary agent as to the best mode of applying to Parliament at the next session to secure the power of controlling the water supply of the town, or, if deemed more expedient, to acquire the plant, undertaking, and powers of the existing company."

Alderman ALGER seconded. He fully agreed with the previous speaker as to the vast importance of the subject, and the awful risk that such an occurrence as this exposed to them. Indeed, had a fire broken out there was no knowing but what a conflagration, comparable only to that in America, might have broken out. Mr. Duly, the inspector of weights and measures, had been paying his official visits in the north-east part of the town, and had told him of the great inconvenience that had everywhere been felt. Bakers and laundresses had the greatest difficulty in carrying on their businesses, and many people, including old women and children, had to toil up the steep hills over and over again with buckets of water. He did not think it would be expedient to confer with Mr. Blaber; that could be done subsequently by the Watch Committee. No compromise of any sort could be listened to. It should be remembered that the town would watch them at this crisis, and keenly scrutinize their conduct.

Councillor HILL said that Councillor Lutley had informed him that a very narrow escape from fire had in one instance occurred when there was not a bucket of water in the house. Another important question was the high price charged for water, the system being that as the rating of the houses increased so did the price of water, though no alteration was made in the supply, and a gentleman could not water his garden with hose tubing without an extra charge. In the gas supply the evils of monopoly were equally notorious, and he hoped this would lead to both being taken by the town.

Alderman SMITHERS and Alderman BRIGDEN supported the resolution.

Councillor WEBB asked if there were any shareholders in the water company present. If so, he hoped they would have the good sense not to take part in the proceedings.

No reply was made to this inquiry.

Alderman IRELAND said that a deputation from the Works Committee had

visited the premises and inspected the plant of the water company. They ascertained that the engine at Goldstone Bottom had been stopped six weeks. This, he considered, showed a great want of ability on the part of the directors, especially as the Goldstone Bottom works were erected to serve the purpose of duplicate engines, and many houses had since been built upon the higher levels of the town, where they could only be supplied by the action of engines on both sides. They might at least have provided two or three extra pumping-rods, and a duplicate set of buckets, instead of which, when the accident occurred at the Lewes Road works, the essential parts of the Goldstone Bottom engine were in London. If the fault lay with the engineer in keeping the things so long, why did not some of the directors go up to London and see about it, instead of waiting for an accident? Moreover, when the Works Committee deputation visited the Lewes Road works, there was not a single man repairing them, although the engine stopped at dinner-time on Monday. They seemed to be waiting for the men to come from Goldstone Bottom. At this time of the year, and when so many squibs were thrown about, the danger of fire was double what it would be at any other time. The price of water was exorbitant, the whole proceedings of the company were characterized by the greatest illiberality, and this occurrence would be a blessing to the town if it led to the corporation taking these companies into their own hands.

Councillor BURROWS said this was one of the most eventful occurrences that had taken place since he had known the town. But evil rarely occurred without being productive of good in the end—even the Chicago fire would, doubtless, prove ultimately, like the Fire of London, to have been beneficial—and he hoped that such might be the case in the present instance. While he had often blamed and warned the water company for their want of liberality, he would certainly maintain that the town was greatly indebted to the promoters of that company for their enterprise; in fact, no town was better supplied than Brighton as far as that went—he hoped, therefore, that all their proceedings with respect to the company would be characterized by courtesy and kindness. At the same time, he cordially supported the resolution, and believed that if the acts it contemplated were carried out, the town would be greatly benefited. When the present drainage works were completed, it would be a great advantage to the town to have the water supply in its own hands, without which they could never properly be flushed. He believed that false economy was the secret of the present occurrence, and a desire to screw a larger dividend. He thought it would be little use to see Mr. Blaber then, unless it was for him to assure the public, through the press, that the difficulty was now surmounted.

It was then resolved, almost unanimously, that Mr. Blaber should not be permitted to give any explanation to the council, it being understood that the Works Committee would subsequently communicate with him.

Councillor UNWIN said it would, of course, be understood that there was not the slightest intention to treat Mr. Blaber with disrepect.

Alderman ABBEY said it was somewhat singular that the origin of the present difficulty could be traced to Egypt, for it was through the London engineers of the company having a large Egyptian contract that they were unable to repair the water-works plant. He fully approved of Alderman Hallett's resolution, and said that if it should prove necessary to get water elsewhere than from the company's springs, there was the well at the Warren Farm, which, if sunk 100 or 200 feet deeper, would yield a large supply. There was also a spring at Black Rock, which would give a large quantity; and, best of all, was the water at the foot of the Dyke Hills, which was close to the surface, and could be brought into Brighton alongside of the railway with very little trouble. He was convinced that, with the undertaking in their own hands, water could be supplied at half the price now charged, and still reserve a good surplus for the ratepayers, and the service would be constant.

Councillor LUTLEY was of opinion that the Warren Farm well could be made artesian, so that the water would flow to the top. It would then be extremely useful.

Alderman BRIGDEN (to the town-clerk): Are we in time to go to Parliament on this matter in conformity with the Standing Orders?

The TOWN-CLERK: We have up to the 16th of November for the preparation of the notice—that is, if the advertisement is inserted on the 16th of November, it can go in again on the 23rd and 30th of November, so as to be three times within the month at weekly intervals.

Alderman BRIGDEN: Provided that we were to take the supply, could we supply Hove and Preston, as being out of the municipal boundaries?

The TOWN-CLERK: There is no question but that Parliament could give the necessary powers.

Alderman Hallett's resolution was then put, and carried unanimously, with general expressions of approval.

The meeting concluded with a vote of thanks to the mayor for presiding.

At a Meeting of the Town Council held on Tuesday, Oct. 31—the MAYOR presiding,

The following special report of the Works Committee was presented:—

"The recent failure in the water supply of the town, and the danger and inconvenience arising therefrom, the gravity of which it is scarcely possible to exaggerate, have engaged the serious attention of the Works Committee, who submit a report of the borough surveyor on the subject. The committee are of opinion that it is necessary for the safety and well-being of the town that the local authority should acquire the control of the water supply. To effect this object they recommend that the town-clerk be instructed, with the assistance of his parliamentary agents, to give notices under the supervision of this committee, and take the other steps for enabling the corporation at the next session of Parliament to apply for an Act for acquiring the plant, undertaking, and powers of the existing water company, and such other powers (if any) as may be deemed expedient by the parliamentary agents for obtaining full and complete control of the water supply for the borough and of the adjacent districts which are subject to the operation of the existing water company's Acts.—On behalf of the committee,

(Signed) "JAS. IRELAND, Chairman.

"*Town-Hall, Brighton, Oct.* 27, 1871."

[Here followed copy of surveyor's report, given in Thursday's proceedings.]

The report having been received and ordered to be entered on the minutes,

Alderman IRELAND moved its adoption. In doing so, he did not desire to impute negligence to the water company in studying the interests of their shareholders, but he held that the time was come for the public to have the control of the water supply in their own hands. He accused the company of parsimony, in not having a second engine at their Goldstone works, the result being a "catastrophe," for such it was, the town being deprived of water, property and life even being at stake. He believed by the town acquiring the works, very much would be saved in the charge to the public as well as a saving effected to the rates—£700 a year being paid for water for the streets, and in addition to this there were payments for the drinking fountains, public baths, the town-hall, the Pavilion, &c. No doubt the directors well earned their £800 a year; they were all men of considerable position and honesty of purpose towards their shareholders, but he believed they had failed utterly in carrying out their duties to the public. The £800 paid to the directors would be saved by the town taking over the works.

Some little discussion ensued as to whether (considering that the Works Committee had their hands full) this matter ought not to be referred to the General Purposes Committee.

Mr. REEVES, Mr. LUCAS, Mr. NEWMAN, and Dr. TAAFFE all spoke in favour of the subject-matter, the latter gentleman holding that the town ought to take in hand all public matters, even so far as the public amusements.

Alderman ALGER also gave in his adhesion to the movement, but wished it to be left in the hands of the Works Committee.

Mr. FRIEND stated that the officials, during the late catastrophe, were fully alive to the position, the engines, horses, hose, everything being in readiness. He also stated that acquiring the water-works would not cost so much as was anticipated by some people, inasmuch as the water company were prohibited from receiving more than 7 per cent., and upon this rate their rights might be capitalized.

The motion was then carried unanimously.

The chairman of the water-works company has addressed the following letter to the local newspapers on the subject:—

"*To the Editor of the 'Brighton Daily News.'*

"Sir,—I should have been glad had the Town Council, at their meeting yesterday (Oct. 26), allowed me to give some little explanation as to the untoward accident at our pumping-station, Lewes Road, which prevented for three days our giving the usual full supply of water to the town; but as I was not permitted to do so, and read in this morning's paper some (no doubt unintentionally) erroneous statements relative to the management of the company, I feel I cannot but ask you kindly to insert this letter in your paper.

"I would first say that, for 18 years, since the commencement of this company, not one day's full supply has failed (until Monday last), and that through several periods of very trying drought, when many large towns were quite without water. We consider we have kept well in advance of the requirements of the town by the construction of additional works, engines, and reservoirs; and this year we have purchased land on the Stanford Estate for an extra reservoir, to be made next spring, and have also in contemplation the erection of another large engine at the Goldstone station. It has been our custom annually to overhaul our engines, for repair in the autumn, when the water is lowest. In doing so at Goldstone Bottom, the valves or buckets of the engine were found to require repair. These valves were sent to the company's engineers in town on the 30th of September, and they were requested to give them their *immediate attention*. Finding the valves were not returned, I went on the 16th inst. to town myself, purposely to see the engineers, when they promised to send the valves by the 19th inst. On the 18th inst. I received a letter stating that the valves would not be ready till the 24th inst., an accident having occurred to one of the castings. On the 23rd inst. I wrote again, and also sent a telegram to the engineers, urging the immediate necessity for the return of the valves. Their reply was that they would be sent on Tuesday, the 24th inst. Not arriving on that day, on Wednesday, the 25th inst., I sent our inspector to town expresaly with instructions to bring the valves down himself by passenger train, which he did; the railway company kindly permitting a luggage truck to be attached to the train for the purpose (the valves weighing nearly two tons). But, in the meantime (on the 23rd inst.), the unfortunate accident occurred to one of the working engines in the Lewes Road.

"I would only observe, in addition, that engines of the size and description used in our works cannot be so quickly repaired by any engineers as by the original makers, who have the working models by them.—I am, sir, yours obediently,

"WILLIAM BLABER,

"Chairman, Brighton Water Company.

"*Brighton, Oct.* 27, 1871."

AVERAGE COMPOSITION AND QUALITY OF THE METROPOLITAN WATERS, IN OCTOBER, 1871.—The following are the returns of the Metropolitan Association of Medical Officers of Health:—

NAMES OF WATER COMPANIES.	Total Solid Matter per Gallon.	Oxygen required by Organic Matter, &c.	Nitrogen.		Hardness.	
			As Nitrates, &c.	As Ammonia.	Before Boiling.	After Boiling.
Thames Water Companies.	Grs.	Grs.	Grs.	Grs.	Degs.	Degs.
Grand Junction	18·33	0·179	0·112	0·003	13·9	3·5
West Middlesex	17·27	0·041	0·112	0·000	13·6	3·3
Southwark and Vauxhall	18·63	0·173	0·110	0·005	14·0	3·6
Chelsea	17·63	0·151	0·130	0·004	13·8	3·4
Lambeth						
Other Companies.						
Kent	27·80	0·005	0·197	0·000	20·0	5·6
New River	17·73	0·022	0·137	0·000	13·7	3·1
East London	18·33	0·035	0·149	0·001	14·3	3·8

Note.—The amount of oxygen required to oxidize the organic matter, nitrites, &c., is determined by a standard solution of permanganate of potash acting for three hours; and in the case of the metropolitan waters the quantity of organic matter is about eight times the amount of oxygen required by it.

The water was found to be clear and nearly colourless in all cases but the following, when it was more or less turbid—namely, in those of the Chelsea and the Grand Junction Companies. The average quantity of water supplied daily to the metropolis during the preceding month was, according to the returns of the water companies to the Association of Medical Officers of Health, 114,354,087 gallons; and the number of houses supplied was 490,382. This is at the rate of 35·3 gallons per head of the population daily.

HY. LETHEBY, M.B.

WATER EXAMINER FOR THE METROPOLIS.—Mr. Chichester Fortescue has appointed Major-General Frank Bolton, R.E., to be water examiner under the Metropolis Water Act, 1871.

HONG KONG AND CHINA GAS COMPANY, LIMITED.—The directors of this company have just issued warrants for the payment of an interim dividend for six months ending the 30th of June, at the rate of 10 per cent. per annum.

NEW GAS COMPANIES.—The following gas companies were duly registered during the past week:—The Barnet Consumers Gas Company, capital £30,000, in £10 shares; the Blaenavon Gas and Water Company, capital £10,000, in £5 shares.

WATER SUPPLY OF FORFAR.—The water supply of Forfar has been analyzed by Professor Macadam, Edinburgh. Thirteen different specimens, taken from the public wells, were transmitted to the professor, all of which, with the exception of one, he describes as unfit for use. The exception is that taken from the river Noran, from which it is proposed to take a supply for the town. The Noran, he says, is of excellent quality for domestic supply.

OPENING OF QUEEN VICTORIA STREET.—On Saturday the new thoroughfare leading from Blackfriars Bridge to the Mansion House, and connecting the Thames Embankment with the heart of the City, was formally dedicated to public use, with some ceremony, in which the members of the Metropolitan Board of Works, by whom it has been constructed, and the Corporation of London, headed by the Lord Mayor, took part.

ARBROATH—BURGH GAS ACCOUNTS.—The Arbroath burgh accounts for the year ending the 10th inst. have been made up. The total revenue is £2511 5s. 6½d., of which £1475 4s. 8d. is ordinary, £527 3s. 10½d. is extraordinary, and £508 17s. gas profits under the Corporation Gas Act. The ordinary revenue shows an in-

crease of £34 as compared with last year. The expenditure leaves a balance of stock for revenue of £425 14s. 5d. This is the first time for a number of years that the balance has been in favour of the town.

No Gas.—The inhabitants of Thurso had recently to do without gas for several days. The cause is not explained. A correspondent of the *Northern Ensign* says: "For a long time we paid 12s. per 1000 feet for gas, which, at all events, burned. Latterly the gas-works were purchased by some folks in Hull, who seem to have been born blind, and never needed any light. They reduced the price to 7s. 6d., and the light to almost nothing at all. We were paying for a kind of stinking air, which could hardly find its way through the pipes, and was ashamed to show itself at the burner. It hissed, and groaned, and died a natural death three or four times every evening. People were, without avail, pouring water into their meters, and curses on the heads of Steirs and Co. But there was worse in store for us. Last week it went out altogether."

Cove and Kilcreggan Gas-Works.—The whole of the capital stock (£5000) of this company has been more than subscribed, almost wholly by feuars, residenters, and summer visitors. The plans of the work have been approved of by the directors, and they will be immediately submitted for approval to the superior, the Duke of Argyll. Arrangements will be made forthwith for the speedy execution of the work, so as to permit its completion before next summer. The supply of gas cannot fail to add to the enjoyment of householders and summer visitors at these favourite watering-places; indeed, the use of oil and candles by families and servants accustomed to the conveniences of gas in towns is a great drawback to a coast residence, and we do not doubt that a gas supply will in many cases induce a protracted stay on the coast, by giving the assurance of a comfort or luxury to which people in towns are accustomed.—*Glasgow Daily Journal.*

Supply of Gas and Water to Kilmarnock.—A public meeting has just been held in the Temperance Hall, Clark Street, to consider certain resolutions drawn up by the committee of the Reform League as to matters connected with the municipal affairs of the town. Mr. James Scott presided. It was proposed by Mr. Bowman, seconded by Mr. Inglis, and carried—"That the first profits of the Corporation Gas Trust shall be devoted to the extinction of the meter-rent." It was next proposed by Mr. M'Ewan, and seconded by Mr. Henderson—"That as the water company's works are not completed according to their Act of Parliament, nor the time in which they are allowed to complete them expired, this meeting is of opinion that no negotiations towards purchase should be entertained by the new Town Council till 1873, when the community shall be entitled to a full, ample, and regular supply of water for domestic use and at present rates." Against this Mr. James Little proposed, and Mr. Irwin seconded—"That no advance on the water-works purchase shall be made until a qualified engineer shall examine and report to the council, and any offer to the company shall not exceed such engineer's valuation of works." After considerable discussion, Mr. Little's motion was carried by a large majority.

Serious Explosion at Whittlesey.—On Tuesday morning great alarm was occasioned in the town of Whittlesey by a loud rumbling noise, and the concussion of windows, &c., and it was ascertained that it proceeded from the church of St. Andrew, and was caused by an explosion of gas, by which extensive damage was done. The fine old building is in the course of restoration, under the care of Mr. Rowe, of Cambridge, the architect, and Mr. Elworthy, of Wisbeach, the contractor. The old gas-pipes had been put in their places without sundry flaws in them having been repaired; and, most unfortunately, the new flooring had been put down, certain planks being left loose to allow the workmen to get at the pipes. A workman was mending a hole when the smell of gas induced him to apply a light, when a quantity of pent-up gas beneath the floor ignited. The flooring was wrenched up, and with a large quantity of scaffolding thrown in wild confusion over the area of the building. Nearly all the windows, newly glazed, were shattered, including a handsome new painted one; carved stones for a new pulpit were broken, and other mischief accomplished. The church is an elegant specimen of early English work, and is being restored in a manner which has gained the admiration of all who have seen it. The explosion was heard several miles off.

Fatal Explosion of Gas in Worcester Street, Birmingham.—On Thursday, Oct. 26, Dr. J. Birt Davies, the borough coroner, held an adjourned inquest at the Trees Inn, Bath Row, on the body of John Dutton, 31, pork butcher and slaughterman, who lived at the back of 39, Middleton's Buildings, Bishop Street South, and who died at the Queen's Hospital, on the 11th ult., from the injuries he received, caused by the explosion of gas on the 26th of September, on the premises of Mr. Bower, stationer, Worcester Street. The inquest had been adjourned for the attendance of Harriet Willets, who said she was housekeeper to Mr. George Bower, who formerly carried on business at 44, Worcester Street. She did not notice any smell of gas on the night preceding the explosion, but she did on the following morning, and informed Mr. Bower of the fact; and he sent his son to the gas company. The parlour windows had been opened in the morning. About six o'clock in the afternoon deceased came to stop up the gas-pipe from which the gas was escaping. He had been requested to come by Mr. Bower. He went into the parlour, mounted a pair of steps, and put a cork in the pipe at the top of the ceiling. He then went into the kitchen, and asked for a match to try it. She gave him some matches, and she saw him again mount the steps, and take one and strike it. Then a tremendous explosion occurred. She was badly burnt; she was standing near the stairs, close to the parlour door. Mr. Bower was in the kitchen at the time of the explosion. The parlour door was wide open. The Coroner: Then there is no pretence for saying that Mr. Bower closed the door, or that you struck the match? Witness: None whatever. The Coroner, in summing up the facts, said it was important to guard against any possible error which might arise in regard to the facts, because the allegation made by the wife of the deceased was of a most shocking character, involving two persons in what would have really been an imputation of murder. To purposely cause an explosion, causing the death of a man, would be nothing else but murder. But, according to the aspect of the facts, there was no doubt but that the allegations were untrue. The jury, after a very short deliberation, returned a verdict of "Accidental death."

East London Water Company.—The East London Water-Works Company have given notice to the various local boards, and other sanitary authorities in the East of London, that "it is their desire and, so far as in them lies, their intention to adopt the system of constant supply in all houses supplied by the company. Before this measure can (in houses already supplied) be generally carried out, it is indispensably necessary that there should be carried out throughout the district considerable alterations and improvements—not necessarily troublesome or expensive—of pipes, cocks, cisterns, and other apparatus in the house; as, should not these be altered and improved, there would be consequences injurious alike to the inhabitants and to the company—to the former, because their dwellings and furniture would be damaged by leakage, flooding, overflow, &c.; and to the company, because their water would be wasted to an extent quite intolerable, whether considered as a question of mere money cost, or of power to find water for the demand. With a view more especially to the introduction of the system of constant supply, the Legislature has empowered the company to make, with the approval of the Board of Trade, regulations for preventing 'waste, misuse, undue consumption, and contamination' of the company's water; and it is the immediate intention of the directors to make and submit to the Board of Trade, for their approval, a code of such regulations. So soon as these regulations have been made and approved they will be duly published throughout the limits of the company's supply, patterns in conformity with them will be exhibited, and the owners and occupiers of all houses already supplied by the company will be invited, service by service, to alter and improve their water-fittings, so as to bring them into conformity with the approved regulations and patterns under constant supply; and the company will proceed to indicate specific parts of their district, in which they will be prepared successively, and as it may be found most convenient to the inhabitants and to the company, and to take active measures, with or without previous application by the owners and occupiers, for introducing the constant, in the room of the intermittent, supply. In the meantime the directors are prepared of their own accord to consider all communications which it may please owners and occupiers to address to them on the subject, and the company's officers are instructed to give every further information which may be required, and actively to co-operate with those who may desire to obtain constant supply on any service. There is already a constant supply in the company's mains, and also a constant supply satisfactory to the occupiers of one-third of all the houses supplied by the company. If after this notice constant supply be not, service by service, introduced into all the houses of all the water consumers, the failure will lie at their door, and will be because the water-fittings—which it is the duty of the consumers to provide in their houses—are not in a proper condition to receive such supply."

Register of New Patents.

2591.—George Symes, of Goding Street, Vauxhall, in the co. of Surrey, engineer, for "*Improvements in portable apparatus for manufacturing gas.*" Patent dated Sept. 29, 1870.

The object of this invention is the introduction into common use of a cheap and simple apparatus for manufacturing illuminating gas, which apparatus, without danger of explosion or other unpleasant consequences, may be readily and conveniently placed and used in private dwelling-houses, offices, shops, warehouses, factories, and other buildings, and may also be advantageously adapted for railway carriages and signals, ships, steamboats, and other vessels, and may be used in all cases where it is necessary or desirable to have a pure and brilliant light without great expense, either in providing the apparatus or in the production of the light, and where it is absolutely necessary that there should be no danger from an explosion at any part of the apparatus.

Wood is preferred to generate the gas, but coal, paper, peat, resin, "dead oil," and other materials may be used, as no part of this invention relates to the novel use of any particular substance or compound for producing the gas. For burning the wood or other substance the apparatus is provided with a circular box or retort of iron, fire-clay, or other suitable material, which may be placed in a kitchen range, in any ordinary stove, or in a stove especially constructed for the purpose. The form of this box or retort allows it to be surrounded by the fire, and a quick and economical production of gas is thereby obtained. The said box is preferably closed by a cover or mouthpiece fitted to a face like a valve, instead of being "luted" or made tight by means of lime or cement as in ordinary gas-retorts. The retort is connected by a pipe or tube to an hydraulic main, which may be a cylindrical vessel of cast iron or other suitable metal, and may be placed in the chimney or arranged and supported in any convenient position in or near the house or structure. This vessel is partially filled with water, and the pipe or tube which connects the retort with the hydraulic main extends down into the water, its opening being below the surface. The hydraulic main is provided with a safety-valve, and when the pressure in the retort rises above a certain degree the safety-valve is forced open, and the gas escapes into the chimney or into a pipe or passage leading into the same. Except when the safety-valve is thus open, the gas flows from the pipe into the water, and by having the opening of the pipe below the surface of the water the apparatus will work with a pressure considerably less than if the gas entered the main above the water. The exit-pipe for the gas is at the top of the hydraulic main, and the tar-pipe is at the end or side thereof, level with the surface of the water. The main is provided with a covered aperture for pouring in the water, and with a cock or tap for permitting the same to escape. By this means the level of the water in the main can be so regulated as to ensure the continual proper working of the apparatus. The gaseous products of combustion received from the retort into the hydraulic main are by the latter separated, so that the gas passes away through the exit-pipe, while the tar and other impurities, except the sulphur, are carried off by the tar-pipe, which terminates in a larger tube or cylindrical vessel arranged below the main. The hydraulic main is connected by the gas exit-pipe or tube to a condenser, which is a vessel having within it a series of vertical partition-plates and transverse obstructing-pieces so arranged that the gas passes alternately over one and under the other till it leaves the condenser. The latter is connected to a purifying vessel, which is divided vertically into two chambers, in one of which there is a series of sieves containing lime, and in the other a series of sieves containing sawdust, sand, or other suitable material. The gas as it enters the purifier passes up through the lime, enters the second chamber, descends through the sawdust, and thence passes free from sulphur away through a suitable pipe or tube to the gasholder. The gasholder may be a cylindrical or other shaped vessel made of sheet iron, zinc, or other suitable metal. This vessel is partially filled with water, in which an inverted chamber rises and descends. Or, instead of this metal gasholder, air-tight bags, made of india-rubber, gutta-percha, leather, or other flexible material, may be used. The gas passes away from the holder to the service-pipe, from which it is conducted to the burner.

In cases where it is necessary or desirable to increase the brilliancy or power of the light a small carburetting vessel is provided, which is filled with cotton or other fibrous material, saturated with undistilled naphtha or other carbonaceous liquid. The gas passes from the gasholder into this vessel, where it absorbs carbon, and is taken therefrom to the service-pipe.

2618.—Frederick James Head, of Eastbourne, in the co. of Sussex, engineer, for "*Improvements in the construction of cocks and valves.*" Provisional protection only obtained. Dated Oct. 1, 1870.

In carrying out this invention the valve-plate or disc and its stem from the rod or spindle are removed, whereby it is worked so that nothing may prevent the valve from having a perfectly water-tight bearing on its seat. The valve works upwards, and is kept up against its seat by a spring beneath it, but in some cases where there is a constant pressure from a head of water the valve will be kept up against its seat simply by hydrostatic pressure. The valve is opened by a rod or spindle which passes through a gland at the top of the cock or valve, and is provided at its upper end with a collar, under which is placed an india-rubber ring or rings, which will keep the rod or spindle up away from the valve stem, and will also form a perfectly water-tight joint. The spindle is worked by a circular cam-piece, which is actuated by a handle above, and when the handle and cam-piece are turned one quarter of a circle, the spindle will be forced down against the valve-stem, and will open the passage.

2664.—Andrew M'Niel, of Tiverton, in the co. of Devon, engineer, and William Wheaton, of Exeter, in the same co., merchant, for "*Improvements in the process of revivifying the materials used for the purification of gas.*" Provisional protection only obtained. Dated Oct. 7, 1870.

The object of this invention is to revivify and render useful again (for a similar purpose) the materials that have been used for the purification of gas.

Various substances are used for purifying gas, but as an example of the application of the invention, the oxide of iron which is commonly employed for the purpose will do. When this material has become saturated with the sulphur, ammonia, and other impurities (for which it has an affinity), it is usually removed from the purifier, and exposed to the air for the purpose of allowing

the sulphuretted hydrogen and ammonia to escape, which they do into the air and become a great nuisance. By this improved process this nuisance is prevented. To this end the spent or saturated oxide of iron is taken, and placed in a close vessel, in which it is exposed to heat for the purpose of driving off the volatile or gaseous matters which are conducted by a pipe to another vessel containing animal matters and other substances which will absorb the gaseous vapour evolved from the iron. Any gases that may escape absorption in this vessel are conducted to another, which is supplied with fresh oxide of iron, and as this substance has a strong affinity for the sulphur and ammoniacal gases, it will quickly absorb or take up, and that may escape from the other vessels. This oxide, as well as that which has been revivified, may be used in the gas purifiers, and the animal matters may be used for the manufacture of artificial manure.

2667.—HENRY LYON, of the city of Manchester, manager of gas-works, for "*Improvements in apparatus for indicating and measuring quantities.*" Provisional protection only obtained. Dated Oct. 8, 1870.

The object of this invention is the construction of an apparatus or arrangement of mechanism to measure solids or liquids by dry measure with greater facility than has hitherto been practised, and also to indicate upon a dial-plate the quantity which has been measured in a given period; and consists in mounting a measure—say, for instance, a bushel measure—at the extremity of a shaft working in bearings in connexion with a train of indicating wheelwork. This shaft is prevented turning, except in one direction, by means of a ratchet-wheel and pawl working within an enclosed box, so that when the measure is tilted for the purpose of emptying its contents, such measure is compelled to turn completely round with the shaft before it can be refilled, every revolution of such shaft causing the indicating wheelwork to revolve, and the number of revolutions of such shaft being indicated by an index-finger or fingers upon a dial-plate, which thereby indicates the exact quantity measured in a given period.

2730.—JOHN STALVIES, of Bromsgrove, in the co. of Worcester, locomotive superintendent, for "*Improvements in gas-stoves for heating and warming rooms, and for other like purposes.*" Patent dated Oct. 17, 1870.

In constructing a stove according to this invention a burner is employed in which a mixture of gas and air is burned, the gas being supplied by means of a supply gas-pipe and the air being introduced into the vertical tube of the burner by means of a series of holes made in the lower part of the said tube. By means of a cap or larger tube also perforated with holes and fitted upon the lower part of the burner-tube, the holes for the supply of air can be more or less closed and the proportion of air relative to that of the gas may be regulated at pleasure. The said burner-tube is supported vertically on a foot, and carries at top a hollow disc or chamber having a series of small holes in its periphery through which the mixture of gas and air passes and at which it is ignited and burns. On the disc or chamber is supported an accumulator or heater upon which the annular flame of the burner plays. This accumulator or heater may be made of cast iron or other metal or material, or combination of materials not injuriously affected by heat. The burner and accumulator or heater are covered by an outer casing which has perforations near its top to allow of the escape of the heated air. It is also furnished with suitable openings for lighting the gas and permitting of the passage of the gas supply-pipe, which latter is furnished with a stop-cock.

APPLICATIONS FOR LETTERS PATENT.

2804.—JOHN BARRIE, of Glasgow, in the co. of Lanark, N.B., plumber, for "*Improvements in the water-supply apparatus of water-closets.*" Oct. 20, 1871.

2815.—EDWARD THOMAS HUGHES, of the firm of Hughes and Son, 123, Chancery Lane, London, patent agents, for "*An improved liquid-meter.*" A communication. Oct. 21, 1871.

2829.—CHARLES WEDDERBURN GRANVILLE, late of Mansfield Chambers, St. Ann's Square, Manchester, but now of Arundel Street, Strand, in the co. of Middlesex, merchant, for "*Improvements in asphalte pavements, and in apparatus for rolling the same.*" Oct. 23, 1871.

2832.—PETER SPENCE, of Newton Heath, Manchester, in the co. of Lancaster, manufacturing chemist, for "*Improvements in the treatment of oxide of iron which has been used in the purification of illuminating gas, for the purpose of again making it available for that process, and also for the manufacture of sulphate and muriate of iron.*" Oct. 23, 1871.

2841.—DANIEL WILKS, of Bloxwich, in the co. of Stafford, dealer in manure, for "*Certain improvements in apparatus for collecting, receiving, and holding all animal refuse, and manufacturing the same into manure without nuisance, particularly applicable to the collecting, deodorizing, removing, and utilizing human excretions and other animal matter of large towns.*" Oct. 24, 1871.

2844.—WILLIAM THOMAS SUGG, of Vincent Works, Vincent Street, in the city of Westminster, for "*Improvements in apparatus for distributing fluids and liquids.*" Oct. 24, 1871.

2845.—JOSEPH CARTER BELL, of Cheadle, in the co. of Chester, chemist, WILLIAM DOMINICK GREGG, of the same place, manufacturing chemist, and RICHARD ROPER KELLY, of Manchester, in the co. of Lancaster, chemist, for "*Improvements in the utilization and purification of the liquor arising from the washing or 'scrubbing' process of the manufacture of illuminating gas.*" Oct. 24, 1871.

2879.—ALEXANDER MELVILLE CLARK, of 53, Chancery Lane, in the co. of Middlesex, patent agent, for "*An improved process for the treatment of night-soil and town or domestic refuse matters for the manufacture of manure, to be called 'taffo-guano.'*" A communication. Oct. 26, 1871.

2886.—PHILIP CHARLES EVANS, of Brimscombe, in the co. of Gloucester, cloth manufacturer, for "*Improvements in lighting and heating, and in apparatus employed therefor.*" Oct. 27, 1871.

2908.—JOHN HENRY JOHNSON, of 47, Lincoln's Inn Fields, in the co. of Middlesex, gentleman, for "*Improvements in paving and asphalting roads, streets, and footways, and in the composition employed therefor.*" A communication. Oct. 30, 1871.

2926.—ADOLPHE PIERRE VASSARD, of New Cross, in the co. of Kent, chemist, for "*Improvements in treating liquid sewage and other ammoniacal liquors.*" Nov. 1, 1871.

2937.—ALFRED VINCENT NEWTON, of 66, Chancery Lane, in the co. of Middlesex, mechanical draughtsman, for "*An improved construction of engine for raising water.*" A communication. Nov. 1, 1871.

GRANTS OF PROVISIONAL PROTECTION.

2245.—JAMES AMOS, of Ashford, in the co. of Kent, miller, for "*Improvements in ventilation, and in the apparatus or means employed therein.*" Aug. 26, 1871.

2495.—JAMES BANKS, of Liverpool, in the co. of Lancaster, iron fence manufacturer, and WILLIAM WALKER, of the same place, consulting engineer, for "*An improved system for the treatment of sewage, parts of which are applicable to the filtration of water for the use of towns, and other liquids, on an extensive scale, and apparatus therefor.*" Sept. 22, 1871.

2507.—NIELS LUDVIG MARTINUS SMITH, of the city of Glasgow, in the co. of Lanark, N.B., engineer, for "*A new water-meter or rotary wheel or machine, suitable also as an air and gas blower or exhauster, and as a pump for raising or forcing liquids, and as an hydraulic or steam motor.*" Sept. 22, 1871.

2526.—CHARLES WALL, of Birmingham, in the co. of Warwick, manufacturer, for "*A new or improved portable air-tight holder or vessel, to be used for sanitary and other similar purposes.*" Sept. 25, 1871.

2534.—CHARLES ROBERT MATHEWS, of 52, High Street, Bloomsbury, in the co. of Middlesex, gas engineer and gas lantern and lamp manufacturer, for "*Improvements in apparatus for a safe, speedy, and easy mode in fixing, connecting, and disconnecting gas-pendants, brackets, pillars, and ground connexions, also for connecting and supplying gas to railway carriages, especially adapted for outside reflecting-lamps.*" Sept. 26, 1871.

2574.—THOMAS GEORGE GREENSTREET, of 142, New Kent Road, in the co. of Surrey, surveyor, for "*An improved apparatus or machine for cleansing streets and thoroughfares.*" Sept. 29, 1871.

2586.—JOSEPH ROGERS, of St. John Street Road, and GUSTAVE DE MEIRELLES SOARES, of York Buildings, Adelphi, both in the co. of Middlesex, for "*Improvements in the manufacture of bituminous asphaltic paving or covering for roads and other ways, and in the means of strengthening the surfaces of the same to facilitate traffic thereon.*" Sept. 30, 1871.

2655.—ALFRED HENRY STILL and DENNY LANE, both of the city of Cork, Ireland, for "*Improvements in the manufacture of illuminating gas.*" Oct. 6, 1871.

2659.—JAMES BURROW, of the Hampton Vicarage, in the co. of Middlesex, master of arts, for "*Improvements in treating sewage and other matters.*" Oct. 7, 1871.

2722.—GEORGE BURGE, of 26, Westbourne Terrace Road, Bayswater, in the co. of Middlesex, contractor, for "*Improvements in paving roadways and footways, and in cements to be used for paving and other purposes, which improvements are also applicable to the construction or formation of railroads and tramroads.*" Oct. 13, 1871.

2734.—JOHN ROWCROFT MACFARLANE, of the city of Manchester, in the co. of Lancaster, gas engineer, for "*Improvements in apparatus for charging and drawing gas-retorts, and for other purposes.*" Oct. 14, 1871.

2738.—STEPHEN HENRY EMMENS, of 2, Gresham Buildings, Basinghall Street, in the City of London, scientific referee, for "*Improvements in the construction of asphalte roads.*" Oct. 16, 1871.

2760.—JAMES BROUGH POW, of Worcester, for "*Improved arrangements for filtering and purifying, also for collecting for utilization, the solid matter in suspension in sewage, especially applicable for obtaining pure potable waters.*" Oct. 17, 1871.

2780.—JOSEPH JEFFREY BENNETT, of Langbourn Chambers, Fenchurch Street, civil engineer, and NICHOLAS ROWE, of the Asphalte-Works, Whitepost Lane, Victoria Park, both in the co. of Middlesex, for "*Improvements in the construction of asphalte and bituminous roadways and footways.*" Oct. 18, 1871.

2804.—JOHN BARRIE, of Glasgow, in the co. of Lanark, N.B., plumber, for "*Improvements in the water-supply apparatus of water-closets.*" Oct. 20, 1871.

2841.—DANIEL WILKS, of Bloxwich, in the co. of Stafford, dealer in manure, for "*Certain improvements in apparatus for collecting, receiving, and holding all animal refuse, and manufacturing the same into manure without nuisance, particularly applicable to the collecting, deodorizing, removing, and utilizing human excretions and other animal matter of large towns.*" Oct. 24, 1871.

2844.—WILLIAM THOMAS SUGG, of Vincent Works, Vincent Street, in the city of Westminster, for "*Improvements in apparatus for distributing fluids and liquids.*" Oct. 24, 1871.

INVENTIONS PROTECTED FOR SIX MONTHS ON THE DEPOSIT OF A COMPLETE SPECIFICATION.

2778.—WILLIAM HENRY TAYLER, of Tudor House, Anerley, in the co. of Surrey, doctor of medicine, for "*Improvements in stoves for burning gas or gas and air for general heating and cooking purposes.*" Oct. 18, 1871.

2795.—EDWARD DUFFEE, of Haverhill, in the state of Massachusetts, U.S.A., for "*Certain new and useful improvements in screens for coal-gas purifiers.*" Oct. 19, 1871.

2879.—ALEXANDER MELVILLE CLARK, of 53, Chancery Lane, in the co. of Middlesex, patent agent, for "*An improved process for the treatment of night-soil and town or domestic refuse matters for the manufacture of manure, to be called 'taffo-guano.'*" A communication. Oct. 26, 1871.

NOTICES TO PROCEED.

1641.—EDWARD THOMAS HUGHES, of the firm of Hughes and Son, 123, Chancery Lane, London, patent agents, for "*An improved valve for stopping and regulating the supply of water, steam, gas, air, and other similar purposes.*" A communication. June 22, 1871.

1859.—ALFRED GARDINER BROWN, of 63, Trinity Square, in the borough of Southwark, surgeon, for "*Improvements in means of disinfecting water-closets, urinals, as well as gutters and other conduits, and apparatus therefor.*" July 17, 1871.

2007.—ALBERT MARCIUS SILBER, of Wood Street, Cheapside, in the City of London, merchant, and FREDERICK WHITE, of Camberwell, in the co. of Surrey, watchmaker, for "*Improvements in apparatus for lighting purposes.*" July 31, 1871.

2385.—JAMES LIVESEY, of 9, Victoria Chambers, Westminster, in the co. of Middlesex, engineer, for "*Improvements in asphalte or similar composition, and in the application thereof to various useful purposes.*" Sept. 9, 1871.

2625.—FRANK CANDY, of New Barnet, in the co. of Herts, for "*Improvements in making roads, ways, and floors, and in the treatment of a material for such purposes.*" Oct. 4, 1871.

2795.—EDWARD DUFFEE, of Haverhill, in the state of Massachusetts, U.S.A., for "*Certain new and useful improvements in screens for coal-gas purifiers.*" Oct. 19, 1871.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £50 BEFORE THE EXPIRATION OF THE THIRD YEAR.

3094.—HENRI ADRIEN BONNEVILLE, "*Improvements in pumps.*" Oct. 9, 1868.

3101.—HENRI ADOLPHE ARCHEREAU, "*A new method of obtaining heat and light and its various applications, and in apparatus connected therewith.*" Oct. 9, 1868.

3158.—ALFRED ROBINS, "*Improvements in the manufacture of water and drain pipes.*" Oct. 15, 1868.

3195.—JAMES RAE, "*Improvements in carts for removing refuse matter from roads, and for watering the same.*" Oct. 19, 1868.

3203.—GAVIN CHAPMAN, "*Improvements in treating sewage in order to obtain valuable products therefrom.*" Oct. 20, 1868.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £100 BEFORE THE EXPIRATION OF THE SEVENTH YEAR.

2364.—HENRY BENNISON, "*Improvements in fluid-meters.*" Sept. 27, 1864.

2559.—ALFRED HILL, "*Improvements in privies, dry closets, and commodes, and in deodorizing substances to be used in privies, dry closets, and commodes.*" Oct. 17, 1864.

2673.—WILLIAM CORMACK, "*Improvements in the distillation or destructive distillation of solid matters or semi-solid matters capable of yielding fluids or gaseous hydrocarbons or other products, such as pit-coal, boghead, or other bituminous coal or shale, peat, wood, asphalte, tallow, lard, fats, or other solid or other semi-solid matters, and in the machinery or apparatus employed therein.*" Oct. 28, 1864.

Price Current.

CASTINGS.—*Per Ton.*
Average Weight of Cast-iron Gas-pipes, per Yard.

1 in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lb.

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle and Middlesboro'.	Wales.	Yorkshire, Derbyshire, and Staffordshire.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Pig Iron, No. 1 (g.m.b.)	4 7 6	3 6 6	2 14 0	3 17 6	3 17 6
1¼ and 2-inch Socket-pipes	7 12 6	6 12 6	6 10 0	6 17 6	7 2 6
2¼ and 3-inch ditto	6 17 6	5 17 6	5 10 0	5 17 6	6 2 6
4 and 5-inch ditto	6 12 6	5 12 6	5 7 6	5 15 0	6 0 0
6 inches and upwards ditto	6 7 6	5 7 6	5 2 6	5 10 0	5 17 6
Retorts, 1st fusion, hot blast	6 2 6	5 2 6	4 17 6	5 12 6	6 2 6
Ditto, 2nd ditto, cold ditto	7 2 6	6 2 6	5 17 6	6 12 6	7 2 6
Tank-plates, ¼ thick and above	6 12 6	5 12 6	5 7 6	6 2 6	6 12 6

WROUGHT-IRON TUBING,
Subject to 60 per cent. Discount.

	2 in.	1¼ in.	1½ in.	1 in.	¾ in.	½ in.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent Welded Tubes, from 2 to 14 feet—per foot	1 8	1 1	0 10	0 7	0 5	0 4½
Ditto ditto, from 12 in. to 23½ in.—each	3 0	2 0	1 6	1 1	0 9	0 8
Long Screws, from 12 in. upwards	4 0	2 3	2 0	1 6	1 2	0 11
Bends and Springs	4 3	2 3	1 9	1 3	0 11	0 8
Square Elbows, equal or reducing; Round Elbows, 5 per cent. extra	3 9	2 3	1 9	1 3	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 9
Crosses, ditto, equal or reducing	4 9	3 6	2 0	2 3	1 6	1 6
Iron Cocks	20 9	13 0	10 0	7 3	5 0	3 6
Ditto, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing Sockets, Caps, Plugs, and Nipples	1 3	0 9	0 8	0 6	0 5	0 4½
Plain Sockets	1 0	0 8	0 7	0 5	0 4	0 3
Syphons, 2-quart	15 0	14 0	13 6	13 0	12 0	—

FREIGHTS.

Coastwise—Newcastle:—	Per Ton.	*Foreign.—*	Per Keel.
Chatham and Rochester	6s. 6d. to 6s. 9d	Barcelona	£20 15s
Cork	8 0	Bordeaux	10 10
Dover, Folkestone, & Ramsgate	6s. 9d. to 7 0	Boulogne and Calais	8 10
Dublin	8 6	Cadiz	13 0
Exeter Quay	9 0	Cronstadt	10 10
Ipswich	6 6	Copenhagen	10 10
London (from Leith)	—	Genoa	18 0
London (Pool)	6s. 3d. to 7 0	Hamburg	10 10
Lowestoft and Yarmouth	5 9	Havre de Grace	10 0
Portsmouth & Southampton	7s. to 7 6	Leghorn	18 10
Plymouth	7 6	Lisbon	9 15
Shoreham	8 0	Rotterdam	10 10
Whitstable	7 0	Stettin	12 0
Weymouth	8 3	Trieste	18 10
		Venice	£20 to 21 0

SUNDRIES.

Best Newcastle Fire-bricks, per 1000	£2 10s. to £2 15s. 0d.
Cliff's Fire-bricks (at Wortley), per 1000	2 15 6
Ingham's ditto (at Wortley), per 1000	2 15 0
Parnley Iron Co.'s Fire-bricks (at Wortley), less discount	2 17 0
Fire-clay Retorts, per foot run	5s. 6d. to 0 7 6
Tarred Rope Yarn, per cwt.	1 0 0

GAS COALS.

Newcastle—Unscreened:—	Per Ton 6s. 6d.
Haswells, Nettlesworth Primrose, and South Pelaw	
Felling, Framwell Gate, North Pelton, Redheugh Main, Walker's Primrose, West Wear, and Whitwell Primrose	7 6
Burnhope, Craghead, Charlaw, Derwent, East Castle, Edmondsley, Eighton Moor, Hartlepool Pelaw, Holmside, Lambton's Gas, Lanchester Pelaw, Medomsley, Mickley, New Pelaw, Pelaw Main, Ravensworth, Seaham, South Moor Pelton, South Leverson, Townley Main, Tyne Main, West Pelaw, Wearmouth Hutton, and Witton	7 0
Peareth, Ravensworth Pelaw, Waldridge, West Garesfield, and West Pelton	7 3
Brancepeth, Dean's Primrose, Londonderry Gas, New Pelton, Pelton, South Peareth, Stella, Urpeth, Washington Hutton, and West Leverson	7 6
Ramsay's Newcastle Cannel	17 6
Wigan Cannel (at Liverpool)	17 0

Scotch Cannel, f.o.b.:—	Per Ton.
Boghead—at Bo'ness, 47s. 6d.; at Leith	48s. 2d
Muirkirk	27 0
Kirkness, best (at Burntisland)	22 6
Capeldrae, 1st quality (at ditto)	22 6
Ditto, 2nd ditto (at ditto)	17 6
Cowdenbeath (at ditto)	13 0
Lochgelly (at ditto)	13 0
Donibristle—at Burntisland, 12s.; at Aberdour	12 6
Auchinheath Lesmahago (at Granton)	27 0
Duke of Hamilton's Lesmahago (at Granton)	27 0

Scotch Cannel, f.o.b.:—	Per Ton.
Arniston (at Leith)	21s. 0d
Wemyss (at Wemyss)	20 0
Haywood Co.'s Haywood (at Granton)	21 0
Pirnie, or Methill	17 0
Lothian's Cannel (at Leith)	24 6
Grange ditto (at Bridgeness)	17 6
Kinniel ditto (at Bo'ness)	17 6
Myles' ditto	23 6
Lochore Parrot (at Burntisland)	25 0
Waverley Seam (at do.)	16 0
Lanemark (at Glasgow)	16 0
Elphinstone Tower (at Leith)	20 0

WEEKLY METAL REPORT.
(*From* J. Berger Spence & Co.'s *Circular.*)

Iron.—"Ayresome" Yorkshire pig iron. No. 1, 57s.; No. 2, 54s. 6d.; No. 3, 53s.; No. 4 (foundry), 52s.; No. 4 (forge), 52s., net cash, or 1s. extra four months. Scotch pig, 65s. 6d. to 66s. Welsh bars, £7 to £7 10s. Staffordshire bars, £8 10s. to £9. Hoop iron, £9 15s. to £10. Gas-tubes, 60 to 67½ per cent. off list. Boiler-tubes, 40 to 42½ per cent.——*Copper.*—English tough ingot, £74 to £75. Chili bars, £67 10s. to £69.——*Tin.*—English ingot, £141 to £142. Straits, £137 to £138.——*Tin-Plates.*—Coke, IC, 24s. to 25s.; charcoal, IC, 30s. to 32s. per box.——*Lead.*—Best English soft pig, £18 to £18 5s. Refined red lead, £20 10s. to £21.——*Antimony.*—French Star, £47 to £48.——*Spelter.*—Silesian, "special brands, £19 to £19 10s.; English, best brands, £19 to £19 10s.

TURNER & ALLEN,

201, UPPER THAMES STREET,

London,

GAS & WATER ENGINEERS.

CONTRACTORS FOR THE SUPPLY OF

LAMP COLUMNS, LANTERNS,
FOUNTAINS, PIPES, &c.,

TO

GAS, WATER, & RAILWAY COMPANIES,
LOCAL BOARDS, SHIPPERS, &c.

Complete Pattern and Price Book, 3s. 6d. post free.

Share List of Metropolitan Gas Companies.

Number of Shares issued.	Amount per Share.	Name of Company.	Amount paid up p. Share.	Dividend p. Cent. p. Annum.	Latest Quotations.
	£		£ s. d.	£ s. d.	£
8000	20	Anglo-Romano	20 0 0	10 0 0	20 — 22
5000	20	Bahia (Limited)	20 0 0	3 0 0	12½— 13
1000	20	Do., preference	20 0 0	10 0 0	24 — 25
750	20	Do., do., redeemable	20 0 0	10 0 0	21 — 23
40000	5	Bombay (Limited)	5 0 0	6 15 0	6½— 7
10000	5	Do., third issue	4 0 0	6 15 0	1¼—1½ pm.
10000	20	British (Limited) (Norwich, Hull-Sculcoates, Hanley, Tunstall & Shelton [Potteries], Trowbridge., and Holywell.)	20 0 0	10 0 0	35 — 36
7500	20	Cagliari (Limited)	20 0 0	7 0 0	20 — 21
112000	10	*Chartered*	10 0 0	8 0 0	16½— 16¾
10000	10	Do., B shares, 4 per cent. max.	10 0 0	4 0 0	7½— 8
25000	10	Do., 5 per cent. preference	10 0 0	5 0 0	13½— 14½
20000	10	Do., 5 per cent. preference, second issue	8 0 0	5 0 0	3½—3¾pm.
20000	10	Do., 10 per cent. preference	10 0 0	10 0 0	19½— 20½
17490	25	*Commercial*	25 0 0	10 0 0	43½— 44½
20000	20	Continental Union	20 0 0	8 0 0	26 — 28
10000	20	Do., new	7 10 0	8 0 0	3½—3¾ pm.
5213	20	Do., preference (Grmny.: Strsbg. France: Cette, Nismes, Montargis Vienne, Roanne, Beaucaire, Rueil, Albi. Italy: Milan, Genoa, Parma, Modena, Alessandria, Messina.)	20 0 0	7 0 0	26 — 28
5000	10	*Crystal Palace District*	10 0 0	10 0 0	17|— 17¾
5000	10	Do., preference	10 0 0	6 0 0	11½— 12
6044	10	Do., new shares	10 0 0	7 0 0	13½— 14
3956	10	Do.	1 0 0	7 0 0	1½—1¾ pm.
23406	10	European (Limited)	10 0 0	11 0 0	16½— 16¾
12000	10	Do., new shares (Boulogne, Amiens, Rouen, Caen, Havre, & Nantes.)	5 0 0	11 0 0	3¼—3½pm.
5000	10	Hong Kong (Limited)	10 0 0	10 0 0	13½— 14½
1560000	100	*Imperial*	100 0 0	10 0 0	172 —174
26000	12½	Do., new shares	12 10 0	7 0 0	16 — 16½
25000	12½	Do., new shares, 1870	*7 10 0	7 0 0	2¾—3¼ pm.
1300	100	Do., bonds	£100	10 0 0	190 —195
56000	50	*Imperial Continental* (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam., Aix-la-Chapelle, Antwerp, Bordeaux, Brussels, Cologne, Frankfort-on-Maine, Haarlem, Stolberg, Toulouse, & Vienna.)	43 15 0 (* Call of £2 10s. per share just paid.)	9 2 6	71 — 73
400	100	Imperial Mexican (Limited)	100 0 0	nil.	
200	100	Do., new	100 0 0	nil.	
3000	40	*Independent*	40 0 0	10 0 0	68 — 70
3000	10	Do.	10 0 0	5 0 0	8 — 9
3000	20	Do.	20 0 0	7 10 0	4 —5 pm.
250000	Sk.	*London*	100 0 0	10 0 0	171 —173
24000	Sk.	Do., 1st preference	100 0 0	6 0 0	120 —125
	Sk.	Do., 2nd preference	100 0 0	6 0 0	
	Sk.	Do., 3rd preference	100 0 0	6 0 0	
£18781	100	Do., 1st preference stock	100 0 0	6 0 0	121 —123
£11828	100	Do., 2nd preference stock	100 0 0	5 0 0	103 —105
15000	5	Nictheroy, Brazil (Limited) Malta and Mediterranean (Limited)	5 0 0	5 0 0	3⅞— 4¼
6000	5	Do., preference	5 0 0	7 0 0	5⅜— 5⅝
20000	5	Mauritius (Limited)	2 0 0	6 0 0	2⅞— 2⅞
30000	5	Oriental (Calcutta)	5 0 0	10 0 0	7⅞— 8
30000	5	Do., new shares	2 10 0	10 0 0	1¼—1½ pm.
10000	5	Ottoman (Limited)	5 0 0	nil.	2 — 2¼
14000	10	Pará (Limited)	10 0 0	8 0 0	10½— 11½
27000	20	*Phœnix*	20 0 0	10 0 0	34½— 35½
3600	100	Do., new	40 0 0	7 10 0	58 — 60
144000	Sk.	Do.	100 0 0	5 0 0	89 — 91
5000	20	*Ratcliff*	20 0 0	10 0 0	33 — 35
	20	Rio de Janeiro (Limited)	20 0 0	10 0 0	33 — 34
6959	5	Singapore (Limited)	5 0 0	6 0 0	
2000	5	Do., preference	5 0 0	7 10 0	
1500	32½	Shanghai	32 10 0	12 0 0	
4000	50	*South Metropolitan*	50 0 0	10 0 0	89 — 91
4000	12½	Do.	12 10 0	10 0 0	21½— 22½
20000	12½	Do., new shares	2 10 0	10 0 0	5⅛—5⅜ pm.
15000	10	*Surrey Consumers*	10 0 0	10 0 0	17-18 ex div
10000	10	Do., new	5 0 0	10 0 0	5—6 ex div
9000	4	United General (Limerick)	4 0 0	5 0 0	2½— 2¾
1500	10	*Wandsworth and Putney*	10 0 0	10 0 0	13 — 14
1500	10	Do.	10 0 0	7 10 0	7½— 8
1819	10	Do.	10 0 0	7 10 0	
1138	10	Do.	5 0 0	7 10 0	
20000	10	Western (Limited) A shares	10 0 0	10 0 0	17½— 18½
10000	10	Do., B shares	9 0 0	10 0 0	7 —8 pm.
10000	10	Do., C shares	9 0 0	10 0 0	7 —8 pm.
20000	10	Do., D shares	1 0 0	10 0 0	3¾—4 pm.
16000	5	*West Ham*	5 0 0	8 0 0	6¾— 7
10000	5	Do., new shares	1 0 0	8 0 0	1¼— 1¾
551	10	West London Junction (Limited)	10 0 0	6 0 0	
520	10	Do., preference	10 0 0	6 0 0	

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LESMAHAGOW GAS COAL.

LESSEES:

LESMAHAGOW AND LONGLEE COAL COMPANY,

Office—5, DIXON STREET, GLASGOW.

Works—BLACKWOOD & SOUTHFIELD, LESMAHAGOW.

English and Foreign Agents:

JAMES MILLER, SON, & Co.,

1, GREAT ST. HELEN'S. LONDON, E.C.,

AND

75, UNION STREET, GLASGOW.

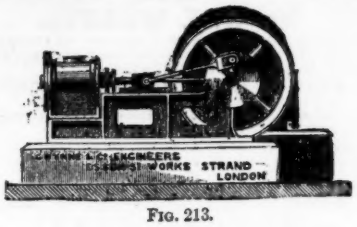


FIG. 213.

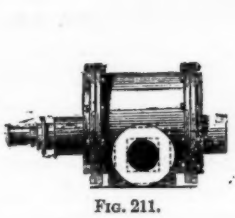


FIG. 211.

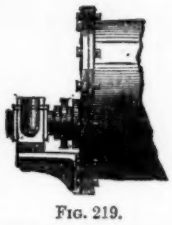


FIG. 219.

GWYNNE & COMPANY,

HYDRAULIC, MECHANICAL, AND GAS ENGINEERS,

ESSEX STREET WORKS, STRAND,

London, W.C.,

SOLE MANUFACTURERS OF

BEALE'S IMPROVED PATENT GAS-EXHAUSTER,

Under the personal superintendence of Mr. BEALE.

REDUCED PRICES AND INCREASED CAPACITY.

Also manufacturers of Improved Hydraulic Regulators, to actuate a steam or gas throttle-valve to suit the make of gas; self-acting bye-pass valves, to move by hand or otherwise; improved stop-valves, with faced flanges, forming the neat adjunct to Exhauster of valve and elbow combined. Two of the largest Gas-Exhausters belonging to London Companies are now altered to our new principle, and are working most successfully.

The Gas-Exhausters may be made with inside or outside bearing, as shown in Figs. 211 and 219.

Fig. 213 shows the Improved Gas-Exhauster attached to, and driven by one of GWYNNE AND CO.'S well-known high-speed Horizontal Steam-Engines, without any intermediate gearing. This arrangement is extremely compact, and is beautifully adapted for small or large Gas-Works, and the foundations and erection are both very simple and inexpensive.

Prices and every information upon application to GWYNNE AND CO. *as above.*

DUKE OF HAMILTON'S

LESMAHAGOW GAS COAL.

The superior quality of this well-known Cannel, as wrought by

THE NITSHILL AND LESMAHAGOW COAL COMPANY,

Is now generally admitted by all Gas Engineers.

PRICE AND ANALYSIS MAY BE HAD ON APPLICATION TO

JAMES M'KELVIE, HAYMARKET, EDINBURGH.

TO GAS COMPANIES AND OTHERS.

WANTED, a situation as Gas-Fitter. Aged 30. Undeniable testimonials can be given as to character, &c.

Apply to Mr. H. NEWTON, Brighton Cottage, Islington Street, ALTRINCHAM.

WANTED, by a young Man, a situation as Wet and Dry Meter Repairer, Gas-Fitter, and Service Layer. No objection to go abroad.

Address X. Y., 50, GOLDNEY ROAD, W.

WANTED, by the Son of a provincial Manager, a situation in a Gas-Work or Gas Engineer's Office, or as MANAGER. Advertiser has a thorough practical knowledge, both of the manufacture of gas and design and erection of new works, and is a good draughtsman; accustomed to use the photometer. No objection to go abroad.

Address C. H. M., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

WANTED, by the Advertiser, an engagement as resident ENGINEER and MANAGER of a Gas-Work. Has had considerable experience in the erection and management of works, and is competent to undertake the complete control and management of a Gas-Work in all its branches. Satisfactory testimonials and references from late employers can be given; also security to a reasonable amount. No objection to go abroad.

Address E. B., care of Mr. W. Lowry, 13, Idol Lane, GREAT TOWER STREET, E.C.

COOKING AND HEATING BY GAS, by MAGNUS OHREN, A.I.C.E. Price 6d., by post 7d. Sent direct from the Author. Gas Companies can be supplied with copies at an agreed price, according to number, with name and particulars altered to suit their locality, to circulate amongst their consumers.

TO GAS COLLECTORS, COMMERCIAL CLERKS, AND OTHERS.

WANTED, early in December next, by the Walsall Improvement Commissioners, a person as COLLECTOR of their gas and other accounts. He will not be paid by commission, but be the servant of the Commissioners, at a fixed salary of £160 a year, and must not accept any employment of any kind under or from any other person or persons. His hours of service will generally be from half past 8 to 6, with one hour for dinner. Occasionally they will be longer, His duties will be to collect the gas and other accounts of the Commissioners, to pay over the same to the Treasurer, and to keep all such books and accounts, and perform such other duties as the Commissioners shall direct. The appointment will be subject to three months notice by either party. Security for £600 will have to be given, either by two sureties or otherwise, to the satisfaction of the Commissioners.

Applications in writing, stating the names and addresses of proposed sureties, are to be sent to the Commissioners Clerk's Office, on or before the 14th day of November next. Not more than three testimonials are to be sent with any application.

Any candidate canvassing the Commissioners will be disqualified.

The Collector will have to reside in such part of the town as the Commissioners shall approve.

SAMUEL WILKINSON, Commissioners Clerk.

Walsall, Oct. 21, 1871.

A GENTLEMAN, 15 years with a large provincial Gas Company, is open to a re-engagement as CASHIER or COLLECTOR.

Address A. R. A., care of Walter Wheeler, Advertising Agent, 12, Union Passage, BIRMINGHAM.

A Gentleman who has had great experience in the works and fabrication of gas lighting, and who speaks English and French, desires the DIRECTION of a Gas Manufactory. Very good references.

Address A. HANSON, Fontinettes Street, St. Pierre-les-Calais, FRANCE.

TO GAS COMPANIES AND OTHERS.

THE Advertiser is open for an engagement as MANAGER, to enter on duties after September next. He has now the management of a Gas-Work where the make of gas is over 30 millions annually.

Apply to A. D., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

TO GAS ENGINEERS.

THE New City Gas Company of Montreal require a thoroughly competent MANAGER, to take charge of their works and the general superintendence of their business. None need apply except they can furnish unexceptionable references as to character, capacity, and experience.

Applications to be addressed to the President, previous to the 15th of December next, at the Office of the Company, stating salary required and other particulars.

TO GAS COMPANIES AND OTHERS.

ON SALE, at the Gas-Works, Cheltenham, Two STATION-METERS, in good working order. One 30,000 cubic feet per hour by Laidlaw, and one 12,000 cubic feet per hour by Wright, both with inlet and outlet connexions and valves complete.

Two BEALES EXHAUSTERS, 50,000 and 20,000 cubic feet per hour respectively.

Also a 60 ft. by 30 ft. TELESCOPE GASHOLDER, with columns, girders, and counterbalance.

Particulars may be obtained on application to R. O. PATERSON, Engineer.

Gas-Works, Cheltenham, Oct. 21, 1871.

STATION-METER FOR SALE, to pass 30,000 feet per hour. Is of the best description, and nearly as good as new.

Apply at the Brighton and Hove General Gas Company's Works, Hove, near BRIGHTON.

ON SALE, a good second-hand Station-METER, 8000 feet per hour, West and Gregson make, bye-pass, &c.

Apply to W. LONGWORTH, Gas Offices, Dukinfield, MANCHESTER.

GASOMETER FOR SALE, with all necessary appliances, suitable for a gentleman's mansion or public institution.

For particulars, apply to Messrs. DEBENHAM, TEWSON, and FARMER, 80, CHEAPSIDE, E.C.

FOR SALE.—A 4-ft. Condenser, with double set of pipes (16) 10 ft. high, in good condition; also some old IRON RETORTS, and a quantity of CARBON.

Apply to C. W. GRIMWOOD, Manager, Gas-Works, SUDBURY.

FOR SALE.—Four Purifiers, 10 ft. square, with centre-valve and connexions. Two Purifiers, 12 ft. square. A Beale's Exhauster, to pass 25,000 feet per hour, with governor and bye-pass. A Jones's Exhauster, to pass about 15,000 feet per hour. A Station-Meter, to pass 25,000 feet per hour. Mouthpieces, Hydraulic Main, and other apparatus suitable for Gas-Works.

Apply to the Tynemouth Gas Company, NORTH SHIELDS.

THREE Hundred Pounds Wanted, for paying the cost of TELESCOPING the GASHOLDER and other enlargements at the Carrick-on-Suir Gas-Works. Paid-up capital £2790. Gross annual revenue £700. Debentures will be issued for above, in sums of £50 or £100, bearing interest at 5 per cent.

By order of the Directors,

Nov. 1, 1871. JOHN CLANCHY, Secretary.

SLAITHWAITE GASLIGHT COMPANY, LIMITED.

THE Directors of the above Company are in want of an efficient person as SECRETARY (duties to commence at once), to keep the accounts and collect, take indices of meters, and general superintendence of works and mains. Last year's make 6,000,000; increase upon preceeding year 25 per cent.

Address, stating age and salary required, with testimonials, to the Directors of the Gas-Works, Slaithwaite, near HUDDERSFIELD.

BUENOS AYRES GAS COMPANY.

THE Undersigned Agent for the above Company will receive TENDERS for the supply of 12,000 tons CANNEL, to be delivered free on board at Liverpool, during next year, at the rate of about 1000 tons per month. The Cannel must be smooth and hard, produce about 10,000 feet of 25-candle gas, good coke, and be in pieces no smaller than about the size of an ordinary brick. If it can be delivered cheaper elsewhere than at Liverpool, the price at the cheapest port to be also stated.

Tenders will be received up to the 30th of November, and the undersigned does not bind himself to accept the cheapest or any tender. LOUIS WILDE.

4, Cable Street, Liverpool, Oct. 26, 1871.

GAS TAR AND AMMONIACAL LIQUOR FOR SALE.

THE Directors of the Hartlepool Gas and Water Company are prepared to receive TENDERS for the surplus TAR and AMMONIACAL LIQUOR to be produced at their works, West Hartlepool, for One, Two, or Three years, from the 1st of December next.

The quantity of Tar will be about 40,000 gallons, and Liquor about 45,000 gallons per annum, and will be delivered into contractor's tanks on the Railway Company's siding at the above works.

No person need tender who is not prepared to remove both the tar and liquor in "tank trucks," and no tender will be received after the 29th inst.

The Directors do not bind themselves to accept the highest or any tender.—By order,

THOMAS TREWHITT, Secretary.

West Hartlepool, Nov. 2, 1871.

THE Directors of the Runcorn Gas Com- pany are prepared to receive TENDERS for the AMMONIACAL LIQUOR made at their works for a term of Three, Five, or Seven years.

For particulars, apply to the undersigned, to whom tenders must be sent, endorsed "Tenders for Ammoniacal Liquor," on or before the 30th of November inst.

The Directors do not bind themselves to accept the highest or any tender.

J. R. FRITH, Secretary and Manager.

Gas-Works, Runcorn, Nov. 4, 1871.

SOUTH METROPOLITAN GASLIGHT AND COKE COMPANY.

NOTICE is hereby given that an EXTRAORDINARY MEETING of the PROPRIETORS of this Company will be held at the London Tavern, in the City of London, on MONDAY, the 27th day of November next, at Two o'clock precisely, to elect a SECRETARY in the place of the late Thomas Livesey, deceased.—By order,

GEORGE LIVESEY, Secretary *pro tem.*

589, Old Kent Road, S.E., Nov. 6, 1871.

EXHAUSTER ON SALE.

TO BE DISPOSED OF, in consequence of being replaced by a larger one, a No. 1 size JONES'S EXHAUSTER, complete with 10-in. connexions, capable of passing up to 5000 cubic feet per hour. Price £12.

Apply to J. L. Cocker, Manager, Gas-Works, Merthyr, Tydvil.

GLASGOW CORPORATION GAS.

TENDER FOR TAR AND AMMONIACAL LIQUOR.

THE Gas Committee of the Corporation of Glasgow are prepared to receive TENDERS for the PURCHASE of the TAR and AMMONIACAL LIQUOR produced at the Townhead and Partick Gas-Works, also at the new works about to be erected at Maryhill. The contract to be for ten years, from the 31st of May, 1872.

The Corporation will erect the necessary building and apparatus for the utilization of the tar and liquor on ground acquired for that purpose adjoining the new Maryhill Works, for which the contractor will pay a yearly rent during the currency of the contract.

Forms of tender, on which offers must be made, may be obtained at the Manager's Office, 42, Virginia Street, Glasgow, on and after the 10th of November, and must be returned, addressed to the "Committee on Gas Supply," to the Gas Office, 42, Virginia Street, Glasgow, not later than the 15th of December, 1871.

The Committee do not bind themselves to accept the highest or any tender.

42, Virginia Street, Glasgow, Nov. 2, 1871.

PRIVATE TELEGRAPHS FOR GAS AND WATER WORKS.

THE Electric Telegraph Department of our business is most efficiently conducted by an experienced staff. CONTRACTS entered into for maintenance and erection of lines for Gas and Water Companies, private residences, hotels, &c. Bailey's simple A B C instrument is stronger and less liable to derangement than any other in the market. Price £6 per pair. Makers of maximum and minimum Electrical Indicators and Signals for Reservoirs. Water Pressure Recorders. Managers of Gas and Water Works are invited to ask us for our quotations, or for any information connected with Telegraphy.

Just published, 800 engravings, 4to., post free 2s. in stamps, weight 10 oz., cost of production £1000,

BAILEY'S Illustrated Inventions, containing details and prices of goods in our five several departments:—(1) Brass Foundry, Steam Gauges, Indicators, Feeders, and Fittings; (2) Engineers Sundries, Small Tools, and Stores; (3) Machine Pump and Fire Engine; (4) Turret Clock, &c.; (5) Electric Telegraph, A B C Instruments, Bells, and Apparatus.

J. Bailey and Co., Albion Works, Salford, Lancashire.

MODERN STREET LIGHTING, by William Sugg, A.I.C.E., price 1s. 6d., is now ready, and will be forwarded post free for 19 stamps.

W. Sugg, Vincent Works, Vincent-St., Westminster, S.W.

Now ready, price One Shilling,

THE WATER SUPPLY OF LONDON.

A speech delivered in the House of Commons, May 23, 1871; also a preface on the METROPOLIS WATER ACT. By U. J. Kay-Shuttleworth, M.P. To which is appended, by permission, a speech delivered in the same debate by Dr. Lyon Playfair, C.B., M.P., F.R.S.

William Ridgway, 169, Piccadilly, W., and all booksellers.

JOURNAL OF GAS LIGHTING.—Subscribers who have SPARE COPIES of the following Numbers may obtain the FULL PUBLISHING PRICE of same on sending them to Mr. W. B. King, 11, Bolt Court, Fleet Street, London; they being required to complete sets.

Nos.	397,	dated January 7, 1868.
,,	423,	,, January 5, 1869.
,,	428,	,, March 16, 1869.
,,	429,	,, March 30, 1869.
,,	430,	,, April 13, 1869.
,,	432,	,, May 11, 1869.
,,	454,	,, March 15, 1870.
,,	461,	,, June 7, 1870.

CATHELS & TERRACE'S Patent Four-WAY DISC GAS-VALVE is the simplest and best Valve for Purifiers, and as a By-pass for other apparatus in Gas-Works. It is always gas-tight, and has no springs, ground faces, or other delicate parts. By its use the flow of the gas cannot be accidentally stopped, and it never sticks.

For prices, &c., apply to the Manufacturers, Messrs. Guest and Chrimes, Foundry and Brass Works, Rotherham.

CATHELS'S Patent District Dry Gas-GOVERNOR is the only perfect self-acting contrivance for Regulating the Pressures in the higher levels of a district.

For prices, &c., apply to the Manufacturers, Messrs. Guest and Chrimes, Rotherham.

CAST-IRON Retorts, Socket-Pipes, with Syphons, and all requisite Connexions, Lamp Columns, Wrought-Iron Tubing, Valves, Street-Lamps, Sight Holes, Furnace Doors, Ash-Pans, Charging and Coke Shovels, Iron Pails, Coke Barrows, Cross Bars, Fire Pots, Pumps, and Iron Borings.

PURIFIERS, CONDENSERS, & SCRUBBERS erected complete, or the materials supplied; and every description of goods in use by Gas-Works, in stock, at wholesale prices, at

Mr. LYNCH WHITE'S,
Old Barge Iron Wharf, Upper Ground Street, London.

BIRTLEY IRON WORKS,
CHESTER-LE-STREET,
DURHAM.

Manufactory for every description of Casting and Machinery for Gas-Works and Water-Works.

Warehouse in London for Cast-Iron Pipes and Connexions of all sizes and in any quantity, Scott's Wharf, Bankside, Southwark.

Agent in London, Mr. J. Manwaring, 101, Cannon Street, E.C.

A SAD STORY.

THE following Subscriptions have been received on behalf of the family of the late Mr. RICHARDS:—

Sums already acknowledged	£148	9	6
A. Dougall, Kidderminster	0	10	0
L. H. Green, Dartford	0	10	6
F. Steel, London	1	1	0
Miss Steel, London	0	10	6
Stephenson Clarke, London	4	0	0
— Sparkes, Leeds	1	1	0
Louis Penny, Oporto	1	1	0

THE IMPERIAL CONTINENTAL GAS ASSOCIATION.
(Incorporated by Act of Parliament.)

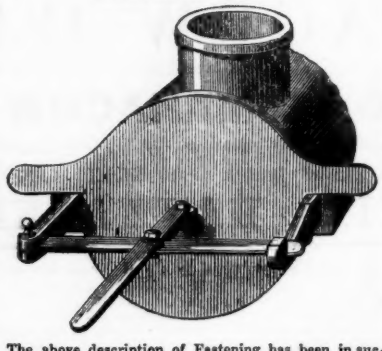
NOTICE is hereby given that the HALF-YEARLY ORDINARY MEETING of the Proprietors of the Imperial Continental Gas Association will be held at the City Terminus Hotel, Cannon Street, London, on TUESDAY, the 28th inst., at Two o'clock in the afternoon precisely, when a Report will be made to the Proprietors, a Dividend declared for the half year ended the 30th of June, 1871, and the usual ordinary business of such meeting transacted.

Notice is hereby also given that the Transfer Books of the Association and the Register of Shareholders will be closed on Tuesday, the 14th inst., and will remain closed until after the Half-Yearly Ordinary Meeting on the 28th inst.—By order of the Board of Direction.

Albert F. Jackson, Secretary.

30, Clement's Lane, London, Nov. 6, 1871.

BOX'S PATENT FASTENING
FOR
RETORT-LIDS.



The above description of Fastening has been in successful use for a considerable time, and can be supplied at a much more economical rate than the ordinary cross-bar and screw.

For prices and particulars, apply to W. Box, Gas-Works, Crayford, Kent.

NORTH WELSH CANNEL.—A quantity of excellent quality for gas-making purposes FOR SALE; yields upwards of 11,000 cubic feet of 25-candle gas, and leaves a capital coke.

Address, 18, Rochester Road, Rochester Square, N.W.

BRONNER'S PATENT GAS-BURNERS give 99 per cent. of light, as compared with 27 per cent. given by ordinary burners, with equal consumption of gas.—*Vide* "Gas Referees Report," published June, 1869.

Henry Greene and Son, Sole Consignees of Brönner's Patent Improvements in Gas Lighting, 16 and 17, King William Street, E.C., and 138, Regent Street, London. Agents wanted.

JAMES OAKES & CO.,
ALFRETON IRON-WORKS, DERBYSHIRE,
AND
WENLOCK IRON WHARF, 20 & 22, WHARF ROAD, CITY ROAD, LONDON, N.,

Beg to inform Gas and Water Companies and the public, that they keep in stock in London all the CASTINGS in general use in Gas and Water Works, including Iron Retorts, Socket and Flange Pipes, Bends, Branches, and Syphons of all sizes, Lamp Columns, &c., &c.

N.B.—Orders for Cast-Iron Tanks, Girders, Columns, Cylinders, and all irregular castings, will have immediate attention. Charles Horsley, Agent.

BELGIAN CLAY RETORTS.

J. SUGG and CO., late ALBERT KELLER, Ghent.—The removal of the import duties on Earthenware permitting the entry of Clay Retorts into England, Messrs. Sugg, of Ghent, beg to draw the attention of the Gas Companies of London, and other Cities, to the very superior quality of the RETORTS manufactured by them. They can be made of any size, in one piece, and of any form. The price will be in proportion to the weight, and very moderate in comparison to their value.

Communications addressed to J. Sugg & Co., Ghent, will receive immediate attention.

CLOTH Gas-Bags for Gas-Mains, as sup-plied to the Imperial, Chartered, and other London and Provincial Gas Companies. Suction and Delivery Hose, Leather Driving-Bands, and Stokers Gloves.

T. Bugden, Manufacturer, 79, Goswell Road, London.

HOPKINS, GILKES, & CO.,
Limited,
MIDDLESBOROUGH,

SUPPLY GAS & WATER PIPES of EVERY SIZE.

Plain, Turned and Bored, and Coated.

CAST-IRON RETORTS.

Castings for Gas-Works of every description.

EXHAUSTERS.

London Office: 25, Laurence Pountney Lane.

MANUFACTURE AND DISTRIBUTION ACCOUNTS.

Mr. W. J. WARNER

Begs to say that in consequence of the number of inquiries he has received relative to the above form of Accounts, which he had the pleasure of submitting to the

BRITISH ASSOCIATION OF GAS MANAGERS,
At their late Meeting in Dublin,

he has been induced to publish them, and is now prepared to supply the two sheets, post free, for 5s.

Applications to be made to

Mr. W. J. WARNER,
Engineer,
Gas-Works, South Shields.

ALFRED LASS,
ACCOUNTANT,
28, NORTH STREET, WANDSWORTH, S.W.

Mr. Alfred Lass having had considerable experience in arranging, making up, balancing and auditing gas accounts, begs to inform the Directors of Gas Companies that he may be consulted on all matters relating thereto.

Balance-sheets prepared, Accounts audited, Consultations, Agencies, &c.

BOOKS FOR GAS ACCOUNTS.

ALFRED DOUBBLE & Co., 2, Serjeants Inn, and 40, Fleet Street, London, make and supply all the various ACCOUNT-BOOKS as approved and adopted by Accountants, &c., to Gas Companies.

A complete set of the Books and Forms forwarded within a few days from receipt of order.

SAMUEL PONTIFEX, Consulting Gas Engineer, having retired from the Great Central Gas Company, is now prepared to furnish PLANS and SPECIFICATIONS, as well as ADVISE Provincial Gas Companies as to the erection of new, or alteration and enlargement of existing works.

Offices: 22, Coleman Street, London, E.C.

ALFRED PENNY, Gas and Consulting ENGINEER,
Wenlock Iron-Works,
21, WHARF ROAD, CITY ROAD, LONDON.

Mr. Penny having had a large experience in the construction, alteration, and management of Gas-Works, begs to inform the Directors of Gas Companies that he may be consulted on all matters appertaining thereto. He also manufactures Gasholders, Purifiers, and all the various apparatus used in Gas-Works, and keeps in stock Retorts and Mouthpieces, Socket-Pipes, Bends, Branches, and T-pieces, &c., &c.

Plans, Specifications, and Estimates prepared.

TO INVENTORS AND PATENTEES.

MR. W. H. BENNETT, having had considerable experience in matters connected with Gas, Water, and Sanitary Improvement, begs to say that he continues to assist Inventors in the perfection of their designs, and to obtain for them PROVISIONAL PROTECTION, whereby their invention may be secured for Six Months; or LETTERS PATENT, which are granted for Fourteen Years.

Patents completed, or proceeded with at any stage, thereby rendering it unnecessary for persons resident in the country to visit London.

Patents procured for Foreign Countries.

Information as to cost, &c., supplied gratuitously upon application to the Advertiser, 42, Parliament Street, Westminster. [Office of the Journal of Gas Lighting, &c.]

EDGE'S PATENT
FOR REMOVING THE
CARBONACEOUS INCRUSTATION FROM GAS-RETORTS

"*Gas-Works, Stamford, Oct.* 24, 1870.

"My dear Sir,—In reply to your favour just to hand, I have much pleasure in bearing my testimony to the efficiency of Edge's process for removing the carbon from Clay Retorts. It has been in use at these works during the last two years, and so satisfactorily has it done its work that I should be very sorry to be without it.—I remain, my dear sir, faithfully yours, "John Storer.

"E. Goddard, Esq."

For particulars and terms, apply to E. Goddard, Sole Agent, Gas-Works, Ipswich.

INTERNATIONAL EXHIBITION, 1862.
CLASS X.
PRIZE MEDAL
For excellence of Fire-Clay Gas Retorts, and
"HONOURABLE MENTION" for
good quality of Fire-Bricks.

WILLIAM STEPHENSON & SONS,
THROCKLEY,
NEWCASTLE-ON-TYNE.

B. CARPENTER'S
IMPROVED
WOOD SIEVES FOR GAS PURIFIERS.

WORKS:
22, HERMES STREET, PENTONVILLE ROAD,
LONDON, N.

The above Sieves are used by the principal Gas Companies in London and the country. Their utility, durability, and cheapness combined, render them superior to all others.

Testimonials from Gas Engineers who have tested their qualities forwarded on application.

All orders punctually attended to, and estimates given if required.

OXIDE OF IRON.—We are prepared to supply, on moderate terms,

HYDRATED PEROXIDE OF IRON (BOG OCHRE),

Same quality as supplied by us to several of the most extensive Gas Companies, and which has given entire satisfaction.

FRANCIS RITCHIE & SONS,
BELFAST.

Now ready, demy 8vo, half bound roan, cloth sides, lettered, price 7s. 6d., by post 8s.,

THE GAS MANAGER'S HANDBOOK,

CONSISTING OF

TABLES, RULES, AND USEFUL INFORMATION

For GAS ENGINEERS, MANAGERS,

And others Engaged in the Manufacture and Distribution of Coal Gas.

By THOMAS NEWBIGGING A.I.C.E.

WILLIAM B. KING, 11, BOLT COURT, FLEET STREET, LONDON, E.C.

A CHECK SYSTEM OF BOOK-KEEPING FOR GAS COMPANIES.

"Mr. Charles Hight, Public Accountant, of 26, Budge Row, has brought out a work most useful to gas companies, the practical application of which will render frauds impossible. . . . It is based on a principle ensuring the best possible check on the rental and the sales, with a greatly improved method of recording the expenditure. The plan is adapted to the Board of Trade regulations for the form and details of the half-yearly published accounts of the London companies."—*Globe.*

"An admirable plan. . . . Has the merit of simplicity."—*City Press.*

For instructions and forms, apply to NISSEN, PARKER, AND ARNOLD, 43, Mark Lane, LONDON, E.C.

TO GAS COMPANIES, ENGINEERS, BUILDERS, &c.

THE PATENT ANTI-GALVANIC PAINT

Is guaranteed to prevent and arrest Rust on all Ironwork, and to cover Tar most effectually. It is most valuable for protecting it from the action of salt water, rain, sulphurous and gaseous exhalations. It has been well tested at various Gas-Works, in covering Tar on Gasholders, Purifiers, &c., and has given great satisfaction. Sample cans for trial sent free of charge. All communications to be addressed to

Messrs. STEVENS, ORCHARD, & CO., 21, Great Winchester Street, LONDON.

Sole Proprietors of Calley's "Torbay" and Chemical Paints.

SCHOLL'S

PATENT PLATINUM

GASLIGHT PERFECTER.

Extract from Report by Dr. Letheby:—

"The results have been very remarkable, for they show an average increase of 63 per cent. on the illuminating power of the gas. I am of opinion, therefore, that the invention is of great practical value."

Extract from Dr. Frankland's Course of Lectures at the Royal School of Mines, February, 1868.

"Scholl's Platinum Perfecter is one of the most important inventions of modern times in connexion with the burning of coal gas."

Price 1s. each for Fishtail Burners.

To be had retail of Gas-Fitters and Ironmongers.

JOHN SCHOLL, Manufactory: 41 & 42, BERWICK STREET;

Retail Depot: 198a, OXFORD STREET, LONDON, W.

Terms on application. N.B.—A specimen sent free on receipt of Twelve stamps.

*** Further testimonials from Drs. Frankland and Crooks, showing the great practical value of this invention, will be shortly published.

JAMES MILNE & SON,

GAS ENGINEERS,

Gas-Meter, Gas Apparatus, and Gas-Fittings Manufacturers,

EDINBURGH, AND

2, KING EDWARD STREET,

NEWGATE STREET, LONDON.

Station-Meters, Governors, Consumers Meters, Gas Lustres, Chandeliers, Brackets, &c., and every description of Gas-Fittings and Gas Apparatus.

TROTTER, HAINES, & CORBETT,

BRETTELL'S ESTATE

FIRE CLAY & BRICK WORKS,

STOURBRIDGE.

Manufacturers of GAS-RETORTS, GLASS-HOUSE FURNACE & BLAST-FURNACE BRICKS, LUMPS, TILES, and every description of FIRE-BRICK.

Proprietors of

BEST GLASS-HOUSE POT and CRUCIBLE CLAYS.

Successors to

E. BAKER AND CO., LATE BRIERLEY HILL, STAFFORDSHIRE.

HANCOCK'S INDIA-RUBBER GAS-TUBING.

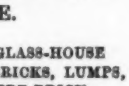
HORSE SINGEING APPARATUS, with GAS-BURNERS, and INDIA-RUBBER TUBING, all complete.

INDIA-RUBBER BAGS for GAS-MAINS.

WASHERS for GAS and STEAM JOINTS.

PACKING (Self-lubricating) for STEAM-ENGINES.

FLANGE TUBING, for excluding Draughts through WINDOWS, DOORS, and GLASS CASES.



Section.

Illustrated Price Lists on application.

JAMES LYNE HANCOCK,

Vulcanized India-Rubber Works,

GOSWELL MEWS, AND 266, GOSWELL ROAD, LONDON, E.C.

THOMAS CARR & SON,

MANUFACTURERS OF

FIRE-BRICKS, LUMPS, TILES, RETORTS, &c., &c.,

SCOTSWOOD FIRE-BRICK WORKS,

NEAR

BLAYDON-ON-TYNE.

WALTER MABON & CO.,

Engineers,

ARDWICK IRON-WORKS,

FAIRFIELD STREET, MANCHESTER,

MANUFACTURERS OF

IRON TANKS, GASHOLDERS,

GAS APPARATUS,

PIPES, VALVES, IRON ROOFS,

WROUGHT AND CAST IRON GIRDERS.

DESIGNS, SPECIFICATIONS, & ESTIMATE FURNISHED.

THOMAS EDINGTON & SONS,

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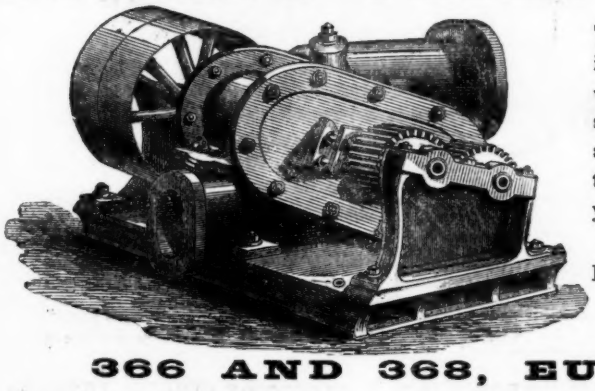

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Diameter of Pipes, Suction and Delivery.	Gallons raised per Hour.
Inches.	
2	2,000
2½	3,000
3	4,500
4	7,500
5	12,500
6	18,000
7	24,000
8	31,000
9	40,000
10	49,000
11	59,000
12	71,000
14	96,000
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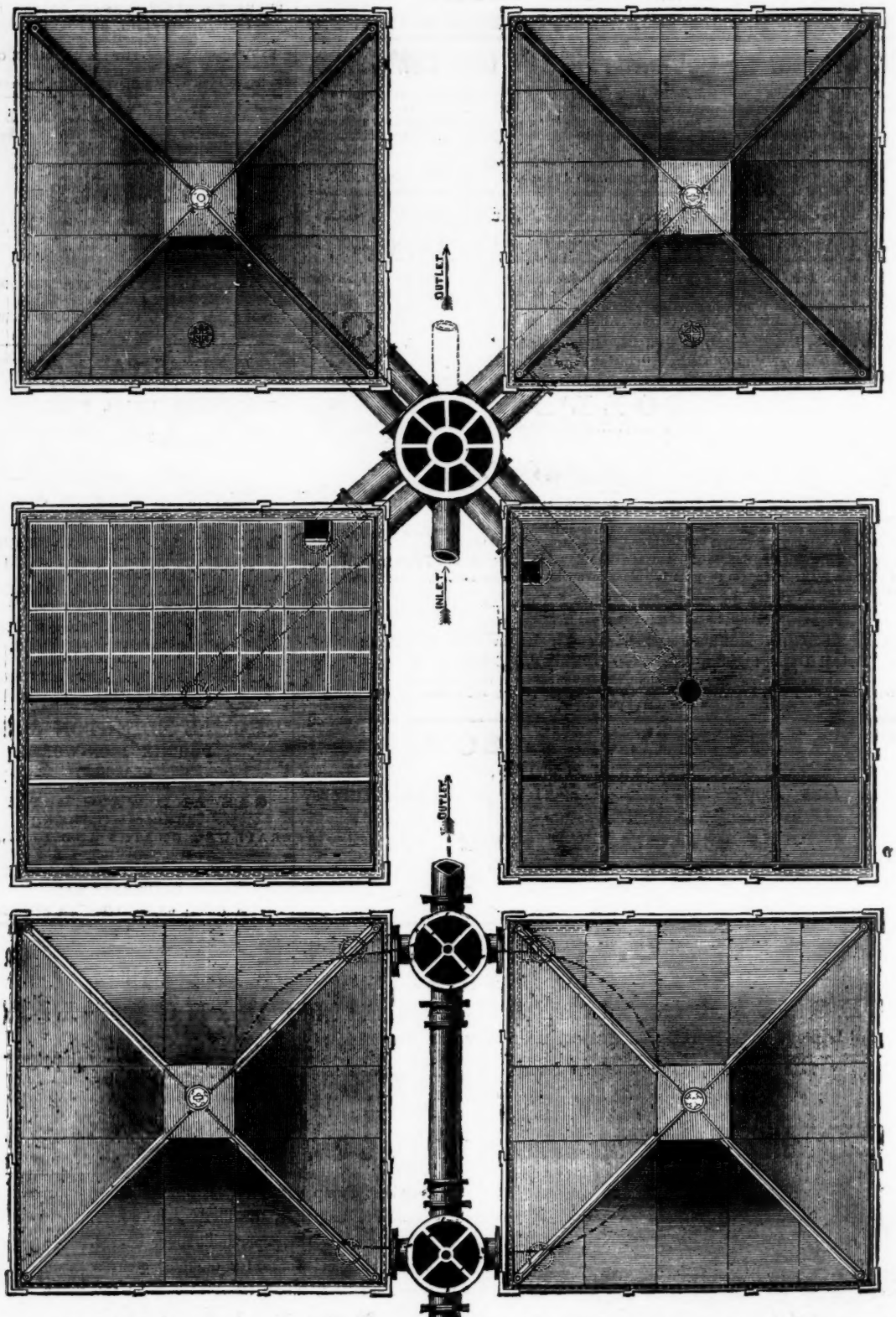
C. & W. WALKERS' IMPROVED PURIFIERS,

WORKED BY THEIR PATENT CENTRE-VALVES, &c.



These Purifiers will develop the largest amount of purifying power, and effect the most perfect purification of gas. The upper engravings show four Purifiers fixed in square, worked by our patent centre-valve, and the lower, the mode of working two Purifiers only by the four-way centre-valves. The centre-valve for working them is perfectly protected from all injury inside the safety cover. The working of these valves is so easy and so governed by the stop-catch movement that the Purifiers can be instantaneously changed with marvellous ease and certainty, even in the dark. The simple straight connexions cannot fail to be at once observed. The lifting apparatus is the most perfect for work, and one man can lift and travel a purifier-cover of any size. The floor of the purifying-house is clear and level, so that a tramway can be laid down if required for charging and discharging the Purifiers. The wood sieves also are very superior, and distribute the gas to be purified evenly all over the surface of the purifying materials. The facings to these valves are *accurately scraped*, metal to metal, to perfect surfaces, absolutely true, without any grinding, and by the patent surfaced bar facings, they never remain uncovered or exposed to dirt or rust. There is nothing more durable upon a Gas-Works, when once scraped perfectly true. They remain as tight in 20 years as the first day they are put into use.

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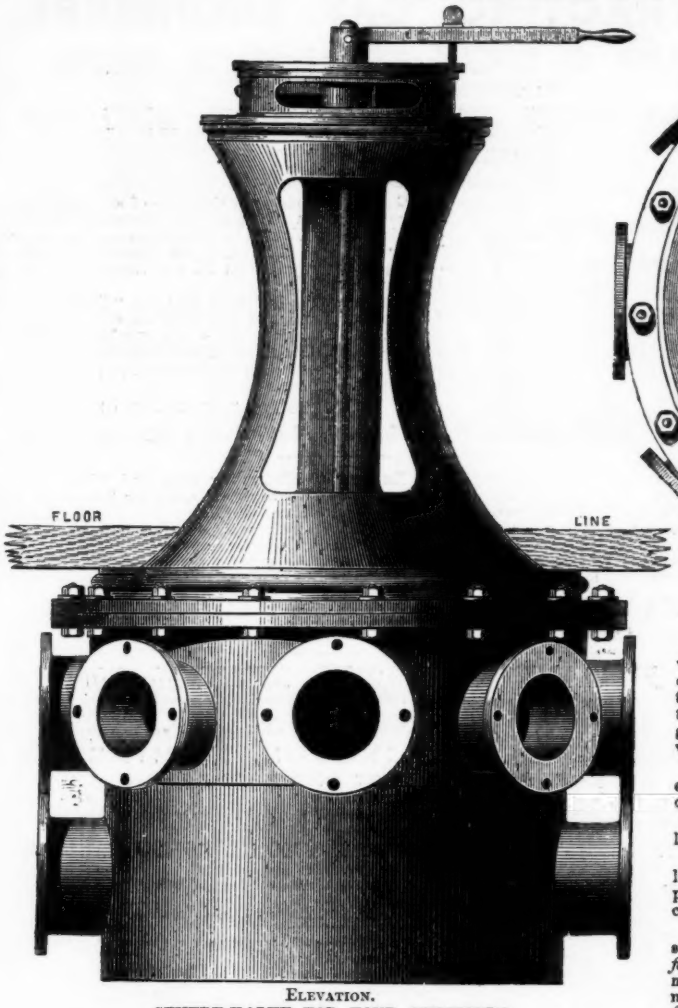
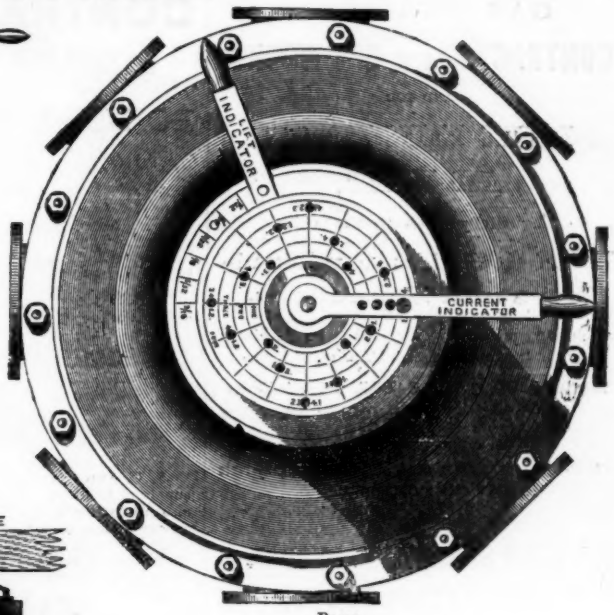
THE RECESSED CONE VALVE.

HOLLINSHEAD'S PATENT.



ELEVATION.

CENTRE-VALVE FOR FOUR PURIFIERS.



PLAN.

These Valves are adapted for every purpose and position about gas-works, &c. They are constructed on the principle of the ordinary plug-cock, the internal cones or plugs being formed with divisions, and both the cones or plugs and bodies of the Valves are *recessed* in such a manner that no part of the working surface is exposed to or in contact with the gas, *thus securing a minimum of friction*, and also the preservation of the working surface *from deposit or deterioration*.

They are provided with screw gearing for relieving the weight of and easing the plug while changing the Valve, so as to preclude the possibility of any sticking or straining.

The Centre Change-Valves and Bye-pass Valves for gas purposes, occupy less space than any other. All parts are easily accessible for examination.

The position of the Valve is changed so instantaneously that there is no liability, in the case of Centre Change-Valves for Purifiers, of impure gas passing forward into the holders during the time of changing, as is the case with Hydraulic Valves, and others used for the same purpose.

The Centre Change-Valves for Purifiers are for any number of Purifiers, so that the gas may be conducted *through the whole of the series of Purifiers*, commencing with any one of them, or shut off from any one or more at pleasure, thus enabling the whole of the purifying surface to be made available, passing the gas through any one, two, three, *or the whole four Purifiers* in succession, and in any desired order.

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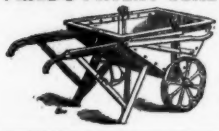

effecting a great saving of time, labour, and expense.

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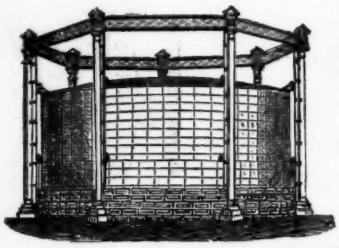

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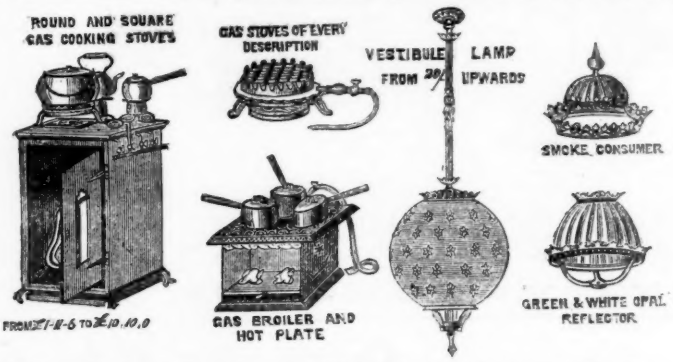
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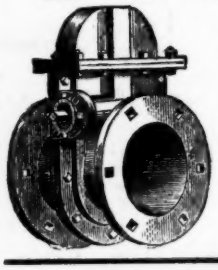

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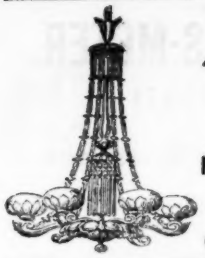

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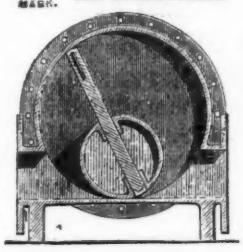

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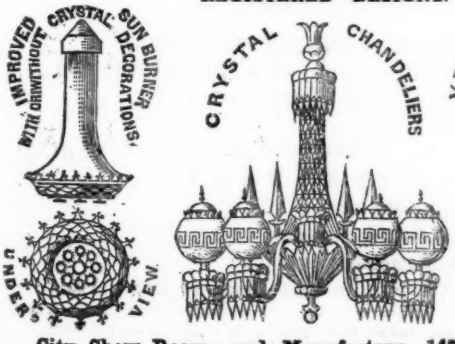

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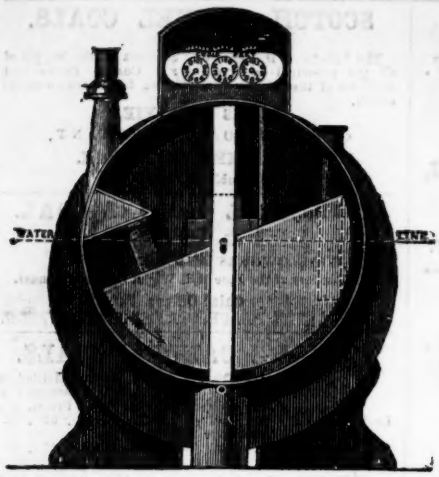

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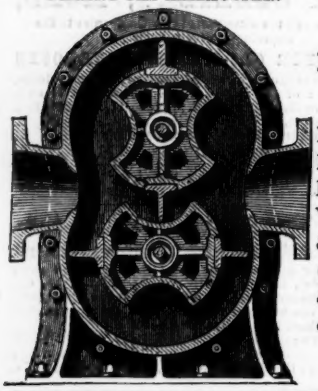

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